

Integrity Municipal Systems I-BOx® Biological Odor Control Systems Resolve Odor Issues at Wastewater Pump Stations Across Maui

The County of Maui operates odor control systems supplied by various manufacturers throughout the island of Maui, with many systems being difficult to maintain and some even failing prematurely. The Integrity Municipal Systems, LLC (IMS) Biological Odor Control System (I-BOx®) was first selected to mitigate hydrogen sulfide (H₂S) odor issues for Lahaina Pump Station #3. In light of the much larger I-BOx® 8015 Biological Odor Control System successfully resolving odor issues at the Lahaina Pump Station #3, the County selected IMS to provide its I-BOx® 30 biological odor control system for the Hawaiian Homes Wastewater Pump Station.



IMS I-BOx® 30 installed at the Hawaiian Homes Wastewater Pump Station.

The I-BOx® Biological Odor Control System is pre-assembled, piped, wired, and factory-tested to facilitate installation and start-up at the project site. The compact, packaged design of the I-BOx® systems facilitate quick and simple installation at the job site. The vessel-mounted control panel, nutrient panel, and nutrient tank provide easy operator access and are readily serviceable for maintenance.

The I-BOx® Biological Odor Control System is a once-through system equipped with a fan that operates continuously, pulling odor-laden air from the wet well into the biological odor control system for treatment prior to release to the atmosphere. The system is composed of two treatment stages: Stage 1, the biological process stage, is followed by Stage 2, pelletized coal activated carbon.

Stage 1 removes primarily H₂S by providing an environment promoting the natural growth of acidophilic, sulfur-oxidizing bacteria. The first stage media is an inert, porous, mineral-expanded clay material that resists compaction and degradation from the acidic sulfates of the biological oxidation of the hydrogen sulfide. The first stage operates with an independently controlled irrigation system that provides the biological media with adequate moisture to sustain bacterial growth and remove toxic byproducts. The irrigation process is controlled by a programmed timing sequence that actuates a solenoid valve located in the water supply piping. Nutrients are also trickled down over the media to enhance and sustain biological activity. The nutrients are housed in an integral nutrient tank and are dosed into the system by a nutrient pump mounted on the water and nutrient feed panel.

In Stage 2, pelletized coal activated carbon is used to remove any remaining hydrogen sulfide and other odorous compounds, while also polishing any sharp H₂S spikes that break through Stage 1. After treatment in Stage 2, the cleansed air is discharged to the atmosphere.



IMS I-BOx® 8015 installed at the Lahaina Wastewater Pump Station #3.