Integrity
MUNICIPAL SYSTEMS

PROJECT PROFILE: Baza Gardens, Guam

Integrity Municipal Systems' Modular Carbon Adsorber System Eliminates Odors for the Baza Gardens Cross-Island Wastewater System in Guam

Commissioned and operational since 1975, the Baza Gardens Sewage Treatment Plant (STP) on the eastern coast of Guam had recently been operating over capacity due to population growth and development in the surrounding area. Occasional sewage spills at the Baza Gardens STP, fines by the Environmental Protection Agency (EPA), and the treatment plant nearing the end of its projected 30-year service life all necessitated the construction of a cross-island sewage pipeline to convey sewage to the Agat-Santa Rita STP on the island's western coast. The existing Baza Gardens STP did not have any odor control mitigation, and the need to implement an odor control solution intensified with a plant working over capacity and developments encroaching closer to the plant. The project to overhaul the Baza Gardens STP into a new headworks and pump station was completed in three separate phases, and an odor control solution would be needed at each phase.

"IMS' quick responsiveness and effortless installation displayed their unrivaled commitment to quality and customer satisfaction."

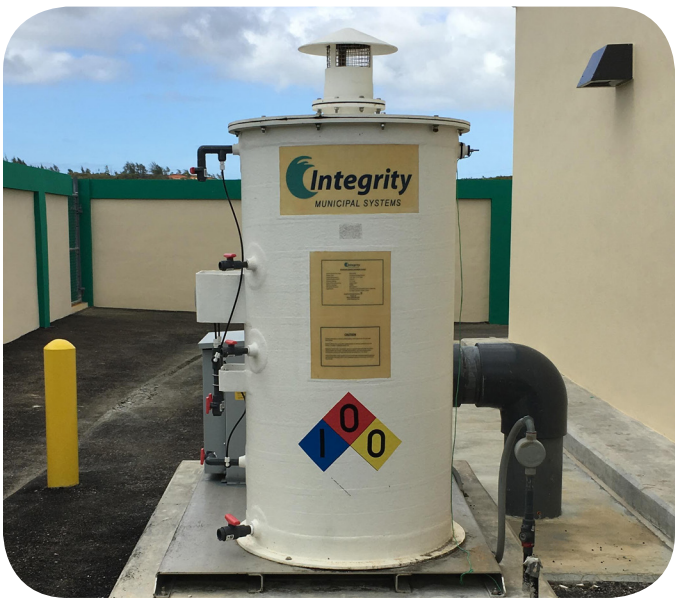
Mr. Rai Galang, Project Manager
BME & Sons, Inc

The first phase of the project consisted of erecting a new headworks facility and pump station at the site of the old Baza Gardens STP. Because of the remote location of the new facility, a low maintenance, simple-to-install system was needed. They selected the completely packaged skid-mounted IMS Modular Carbon System MCS-0250 to solve their foul odor issues.

The second and third phases of the project included the construction of the sewage conveyance pipeline and lift stations along Highway 17 to the Agat-Santa Rita STP. The pump stations built under phase two and three each employed the IMS MCS-0250 to alleviate all hydrogen sulfide odors and prevent foul odor complaints. Since December 2018, sewage has been pumped across the island from the Baza Gardens STP to the Agat-Santa Rita STP without the foul odor of hydrogen sulfide. The three MCS-0250 Modular Carbon Odor Control Systems supplied by Integrity Municipal Systems, LLC have eliminated the growing community's odor problems.

The IMS MCS-0250 Modular Carbon Odor Control System installed at the Baza Gardens STP is designed to treat hydrogen sulfide and other odorous compounds found in municipal wastewater collection systems and treatment processes. The carbon adsorber odor control system consists of an exhaust fan, damper, interconnecting ductwork, vessel with high H_2S capacity activated carbon (3 ft. bed) and a control panel. The entire system is skid-mounted for easy installation and portability.

The exhaust fan operates continuously and pulls foul air from the process area through the foul air collection ductwork into the carbon adsorber odor control system for treatment prior to release to the atmosphere. A volume control damper is placed



One of three MCS-0250 Modular Carbon Odor Control Systems installed at the Baza Gardens Cross-Island Wastewater System in Guam

at the system inlet to allow regulation of airflow through the carbon adsorber.

After entering the vessel, the foul air flows through a densely packed bed of activated carbon. The bed consists of 3 feet of high H_2S capacity activated carbon media. The odorous compounds are removed from the airstream through an adsorption process where they adhere to the activated carbon media pores. A subsequent chemisorption process transforms H_2S into sulfur. The adsorption process continues until the activated carbon pores are depleted. The cleaned air continues through the vessel and is discharged through the vessel outlet stack. A pre-wired control panel ensures proper control and operation of the system.

The carbon adsorber odor control system is equipped with a grounding rod that is used to remove any static charge that might build up in the carbon media. A differential pressure gauge is used to provide an indication of changes in pressure through the carbon media. Carbon sample valves allow the removal of representative carbon samples from the carbon bed. An outlet air sample valve allows extraction of air samples.

Two of the three systems delivered to the cross-island pump stations were installed with the support of the general contractor for both phase 1 and 2, BME & Sons, Inc., and commissioned in November of 2018. Mr. Rai Galang, the Project Manager for both phase 1 and phase 2, conveyed his appreciation and overall satisfaction and ease of working with IMS by recounting that “IMS’ quick responsiveness and effortless installation displayed their unrivaled commitment to quality and customer satisfaction.”

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