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CASE STUDY
IN-VESSEL BIOCONVERSION FACILITY
HONOLULU, HAWAII

PRODUCING EQ PELLETS
The pellets produced on Sand Island begin their journey in the wastewater treatment plant where the wastewater is treated, and the solids are separated and transferred to the anaerobic digester. The solids stay in the digester for a minimum of 15 days at 98 degrees Fahrenheit. This is the first step in killing off pathogens and reducing volume. Next, the digested volume is sent to the centrifuge where it is further de- watered in preparation for treatment in the dryer. The Facility utilizes a drum dryer that operates with direct heat. Gas from the digestion process is utilized to run the dryers contributing to the overall sustainability of the system and end-product. A direct-heat drum dryer provides the heat necessary in a uniform manner to kill off any remaining pathogens and produce a small, uniform pellet for use as a safe and effective source of fertilizer in meeting the nutrient needs of many crops. Pellets may be used in a wide variety of markets including application in agricultural, horticultural, professional or consumer markets.

PLANNING FOR THE FUTURE
In 201,1 it became clear that a second digester was needed. In 2013, the second digester was approved by the City Council. Construction of the second digester began in early 2016 and came on line in July 2018. The second digester provides much needed extra capacity for the growing population in Honolulu as well as the assurance of redundancy for the facility. The volume of pellets produced will increase providing more opportunities for a sustainable and economically sound environment on Oahu.

CHALLENGE
The City and County of Honolulu (CCH) partnered with Synagro to develop a system to recycle and reuse the biosolids produced in their main wastewater treatment plant on Sand Island, thus providing a model for a closed-loop environmental system. The pellets produced provide a natural substitute for synthetic fertilizer to Oahu's agricultural and landscaping communities.

Biosolids are nutrient-rich materials created through the wastewater treatment process. The pellets provide slow-release nutrients released through microbial activity in the soil to soluble forms of nitrogen (N), phosphorus (P) and potassium (K) that plants can absorb. The result is increased water retention, stronger root development, reduced potential for leaching and increased soil carbon storage. Utilizing this Natural, renewable resource on the island of Oahu provides both a sustainable and economic solution for maintaining the beauty and health of the environment. As a substitute for synthetic fertilizers, the pellets save money, reduce emissions from shipping and utilize a resource that was previously disposed of non-beneficially, and contributed to unhealthy methane production. In 2015, the Synagro-operated bioconversion facility marketed 99 percent of the pellets for agricultural use, with the remaining one percent being lost to extreme weather conditions during the hurricane.

PROJECT HISTORY
CCH embarked on a project to improve their wastewater collection and treatment system in 2002. Included in the plan was their desire to recycle and reuse the solids produced in the wastewater treatment process. CCH contracted with Synagro to design, build and operate an in-vessel bioconversion facility located at the Sand Island Wastewater Treatment Plant in Honolulu, Hawaii. The Facility consists of an egg-shaped anaerobic digester, centrifuge dewatering and a heat-drying and pelletization facility to produce an Exceptional Quality (EQ) designated product. An EQ product can be used anywhere without restrictions. The facility came online in 2006.

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When you're looking for the best biosolids and residuals solutions to serve your business and your community, Synagro has the proven solutions to help you succeed. Municipalities and industrial organizations like yours that want to make the best use of organic waste turn to Synagro. Across the United States, Synagro applies expertise and innovative technology to provide resource recovery solutions that meet the unique needs of customers and communities.

WHO WE ARE

Synagro is the country's preeminent provider of biosolids and residuals solutions services since 1986.

Headquartered in Baltimore, Maryland, we employ over 800 people in 34 states and service more than 600 municipal and industrial water and wastewater facilities.

HOW WE CAN HELP

Our professional and experienced staff members provide solutions for all aspects of biosolids and residuals management needs, from land permitting and soil analysis by our nationwide technical services team to facilities development by our in-house engineering staff. Synagro provides a comprehensive scope of customer focused solutions.

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