

PROJECT LOCATION

County of Maui, HI

PROJECT TYPE

Design, Manufacture, Supply,
Installation

PROJECT TIMEFRAME

September 2018 – June 2019

PROJECT PHASE

Complete

AV[®] SCOPE OF WORK

\$2,300,000

END USER

County of Maui, Department of
Water

GENERAL CONTRACTOR

Aqueous Vets[®]

DESIGN ENGINEER

County of Maui
Aqueous Vets[®]
PSI Water Technologies

SALES CONTACT

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Disinfection Independence for County of Maui – Aqueous Vets[®] Retrofits Six Major Water Treatment Plants with Onsite Chlorine Generation

The County of Maui, Department of Water (DOW) is responsible for providing drinking water to over 36,400 service connections across three islands. The agency produces 33.5 MG of drinking water each day through a system that includes six surface water treatment facilities, 145 storage tanks with a combined storage capacity of 295 MG and roughly 750 miles of distribution pipelines.

In 2016, officials at the DOW were informed that their sole supplier of chlorine gas planned to cease providing the product in June of 2017, giving them roughly one year to have a new disinfection system up-and-running at six surface water plants and three well sites.

As the DOW considered alternatives to chlorine gas, thought leaders sought autonomy from the limited chemical supply chain serving the Hawaiian Islands. Additionally, the DOW wanted to choose a technology that would increase their safety, self-sufficiency, independence and resilience in the case of natural disasters. Officials performed a thorough evaluation of alternative forms of chlorine bleach by comparing both capital equipment



and operating costs, as well as the cost and risk of handling hazardous materials. The DOW compared bulk sodium hypochlorite, calcium hypochlorite and On-Site Sodium Hypochlorite Generation (OSHG). The result of their detailed evaluation pointed to the OSHG option as meeting their needs for safety, self-sufficiency, independence and resiliency while achieving the lowest life cycle costs for the DOW.

Disinfection Option	Cost Per Pound of Free Chlorine	Capital Cost	Safety
Gas Chlorine	\$1.10 - \$1.30	Low	Hazardous Gas
Bulk Sodium Hypochlorite	\$3.50 - \$4.50	Low	Hazardous Liquid
Calcium Hypochlorite	\$3.85 - \$4.50	Low	Hazardous Solid
On-Site Generated Sodium Hypochlorite (OSHG)	\$1.05 - \$1.30	High	Non-Hazardous Liquid



AqueoUS VETS®



How Do Four Water Treatment Plants Get Retrofitted in 45 Days? *“Unbridled collaboration and teamwork focused on the objective” – Rob Craw Aqueous Vets® Project Manager*

In February 2019, Aqueous Vets®(AV®) was contracted by the DOW to install PSI Water Technologies’ Microclor® Onsite Chlorine Generation Systems at Mahinahina, Kamole, Pi’iholo, and Olinda Water Treatment Plants (WTP). These systems ranged in chlorine generation capacity between 60-200 lbs./day of free available chlorine. The goal was to have all four WTP’s plants completed by June 30, 2019.

As the contractor/supplier, AV led the team made up of the County of Maui and PSI. AV had total contract responsibility to design, deliver, install, commission the OSHG systems and place them into operation prior to June 30, 2019. The collaboration of the three entities resulted in a team focused on the achieving the objective. The time frame to achieve the goal would be considered a short or potentially impossible window under any circumstance. As with every project, contracts had to be executed, submittals approved, systems manufactured and shipped, then installed, commissioned, and integrated in to the DOW’s WTP water system. Similar projects would result in contract periods of 12-18 months.

The actual field work commenced in May 13, 2019 and was completed June 21, 2019. Full conversion to on-site sodium hypochlorite was successfully completed on-time, on budget, with zero change orders and as planned by the entities. The DOW’s modified design build approach allowed to the DOW to achieve their project goals and meet their June 30, 2019 completion date.

Tony Linder, Divison Chief, County of Maui, DOW:
“The Microclor® system is a safer, cost-effective alternative to gaseous chlorine. In 2018, the County DWS converted two facilities to Microclor® systems with another four by June 30, 2019. The AqueoUS Vets® led team delivered on their contract, technical support and service promise.”

