

Treatment Plant Upgrade Includes Conversion to On-Site Sodium Hypochlorite Generation to Ease Operations and Increase Safety

The City of Malambo is part of a larger metropolitan area located in the northern Atlantic region of Colombia, just south of Barranquilla. Malambo's municipal area is roughly 38 square miles and home to over 125,000 residents. The region enjoys a rich agricultural history due to the fertile Magdalena River Delta. The cultivation of cash-rich crops like cotton, rice and yucca have helped to propel Malambo into a center of industrial development.

Empresas Públicas de Medellín (EPM), the largest residential utility company in Colombia, provides water and sanitation, electricity and gas to 123 municipalities throughout the country, including the City of Malambo. EPM was founded in 1955, is organized as a state-owned industrial and commercial enterprise based in Medellín.



As part of the region's economic development plan, EPM and the regional officials began seeking ways to improve water distribution by expanding the daily treatment capacity of the water plant, Planta de Agua Potable El Tesoro. They aimed to increase production from 150 l/s to 420 l/s - roughly the equivalent of going from 3.4 MGD to 9.5 MGD of treated water. The overall goals of the expansion project were to ensure continuity of water service, improve quality of life to local citizens and to promote the economic development of the municipality. In addition, EPM sought to improve safety for their operations staff and local residents by replacing the use of one-ton pressurized cylinders of chlorine gas in the disinfection process.

The design team compared on-site hypochlorite generation to bulk bleach deliveries. Ultimately, it was the desire for simplicity, safety and self-sufficiency that led them to choose the Microclor® On-Site Hypochlorite Generation (OSHG) system from Process Solutions, Incorporated (PSI). The team felt strongly that the open-cell construction and ease of maintenance with the PSI system would work best for the EPM Malambo operations team. The simple fact that the 0.8% bleach did not degrade in the hot summer months made OSHG an easy choice. The installation of OSHG also represented a commitment to sustainability by utilizing only salt, water and electricity to generate bleach, as well as remaining technologically competitive in the region.

In February of 2014, EPM signed the contract for a 300 lb per day (136 kg per day) Microclor® OSHG unit. They began operation of the Microclor® unit at the existing water plant in August of 2014, while they awaited the completion of

the new, expanded plant. By January of 2015, they were fully operational at both the new and existing plants. The Malambo Microclor® project represented the largest OSHG installation in all of Colombia and the first major gas conversion project for EPM.

Global IndTech, the Colombia distributor of PSI products provided the initial design and technical support from their headquarters in Bogota. Once the project was underway, they provided local support services on the ground, including installation, startup and training.

Now in operation for well over two years, the Microclor® system has proven itself in terms of reliability and safety. According to EPM management, the clear, vertically-oriented cells and the system's open architecture allow for easy inspection and simplify any minor maintenance that might be required. Furthermore, operators appreciate the fact that no special hazardous materials training or special safety equipment (other than glasses and gloves) are required for working on the system. The success of the Malambo Microclor® project has made it the cornerstone for numerous other gas conversion projects throughout Colombia.



“The main advantages are that the system is very simple to operate and controlling dosage is now easier than before, plus we have the added benefit of increased safety from not handling chlorine gas.”

Randy Mesa – Plant Supervisor and Operator