



Optimizing Saipan's Water System Operation



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A stated goal of the CNMI government is to provide 24-hour water to all residents served by the Commonwealth Utilities Corporation (CUC). In response, for the past several years the Saipan water delivery system has undergone significant changes. In 2006, the EPA acknowledged that the lack of safe drinking water was among the top environmental challenges facing the CNMI, particularly Saipan (Erediano, 2006). As the result, In March of 2009, the Commonwealth Utilities Corporation (CUC) entered into a stipulated order (STO) for preliminary relief under an agreement with the Government of the United States. The order provided for a long list of compliance items that CUC must complete in order to satisfy the stipulated order. One major item that CUC must prepare is a Master Plan for their water supply and waste water systems. Finally, in 2013 an updated master plan "Drinking Water Mater Plan-Saipan, Commonwealth of the Northern Mariana Island" was completed. Through field visits, the master plan did an assessment of the current state of the water infrastructure and provided recommendations for improvement. Reducing system leakage (non-revenue water), monitoring pressure changes throughout the system, and monitoring water usage were on the high priority list that was recommended

to CUC for improvement. According to the master plan, non-revenue accounts for nearly 70 percent of the water production on Saipan. Assessing various strategies for reducing non-revenue water and providing 24-hour water was identified as one of critical research needs for CNMI at the CNMI research advisory meeting of October 17, 2013. In order to reduce the non-revenue water rate and improve the system operation it is necessary to have a good knowledge of the pressure changes in the water system and how this changes with the hourly water use.

The specific objectives of this project will be to:

1. Determine the pressure change throughout the CUC's water distribution system using pressure loggers that will be installed at selected fire hydrants.
2. Continue to improve Diurnal demand pattern (changes of water demand during the day and month) that was developed in FY2013.
3. Examine the physical components of the entire water distribution system
4. Determine water system operation that assists CUC provides 24-hour water service to all its customers.