



Toyota Motor Manufacturing Kentucky

Member Spotlight | 2023

Revise Osmosis (RO) Water Reduction

Toyota Motor Manufacturing Kentucky (TMMK) has been a member of Kentucky Excellence in Environmental Leadership (KY EXCEL) since 2006. As Toyota's largest vehicle manufacturing plant (NAICS Code 336111) in the world, TMMK is annually capable of producing 550,000 vehicles and more than 600,000 engines. Since the facility broke ground in 1986, more than 12 million vehicles have rolled off TMMK's assembly lines. In addition to the Camry, TMMK manufactures the Camry Hybrid, Avalon, Avalon Hybrid, RAV4 Hybrid, Lexus ES 300h and Lexus ES 350, as well as four-cylinder and V-6 engines. Toyota has invested more than \$150 million to various philanthropic and educational initiatives since 1988. As part of their KY EXCEL membership requirements and commitment to the environment, TMMK proposed to reduce the amount of water consumed on-site.

Goal #1



Water Conservation

More specifically -TMMK proposed to reduce the amount of water used by the facility by reducing the amount of RO water consumed by TMMK's paint shops for quality standard requirements.

Goal #2



Wastewater Reduction

Additionally, reducing the amount of RO water used by the paint shops will also help to prevent and reduce the amount of wastewater generated by the location's painting operations.

Goal #3



Cost Savings

Reducing the amount of water used and the amount of wastewater created will also reduce operating costs by lowering the amount spent on purchasing water and the treatment/disposal of wastewater.

Kentucky Department for Environmental Protection

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TMMK is the largest Toyota manufacturing facility in the world and Toyota's first wholly-owned vehicle plant in the U.S.

To start this project, TMMK installed meters around an RO system of one of the facility's paint shops and continuously monitored the meters. TMMK utilized its new monitoring system to recognize that a significant volume of the produced RO water was being overflowed into TMMK's wastewater system.

Before this project, RO water was being pumped to several tanks that supplied the processes. The system was inadvertently producing more RO water than was needed, so the excess overflowed into waste. About 25% of the water was being lost when it overflowed to waste. To reduce the amount of water consumed, TMMK installed a three way valve in conjunction with a conductivity meter to manage the volume of RO water produced and to reduce the water waste to zero.

Historically, TMMK has consumed 140 gallons of water to manufacture 100 gallons of RO water on-site. By optimizing the RO operation, TMMK not only conserved water and improved the production of RO water but also standardized the consumption of RO water. TMMK is evaluating the entire RO process to find more reduction and optimization opportunities.

Project Overview

Investments & Results



**\$20,000
Spent**



**100%
Reduction of
Waterwaste
(within process)**



**1,512,000 Gal.
Water Use
Prevented**



**\$7,862
Saved**



PRODUCED BY KENTUCKY EXCELLENCE IN ENVIRONMENTAL LEADERSHIP (KY EXCEL)
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