

Water-Smart Success!

Implementing an Industrial Process Water Use Reduction Program

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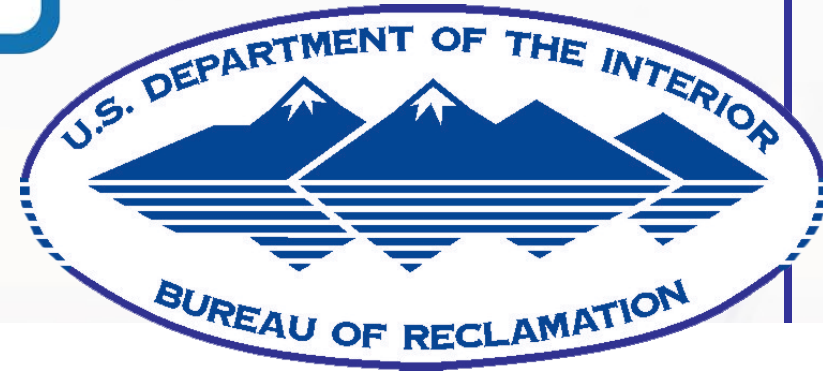


Municipal Water District of Orange County

- Wholesale supplier and regional planner to 28 client cities and water agencies
- Governed by seven-member elected board of directors
- Member agency of Metropolitan Water District of Southern California
- Service area: 600 square miles
- Water demand: 668,000 AFY
 - Imported supply
 - Local supplies
- Population: 2.3 million



Program Funding Provided By:



The Family of Orange County Water Agencies





Industrial Program

PROGRAM OVERVIEW



Program Background

- **Targets efficiency improvements in industrial manufacturing processes that are water intensive**
- **Couples Technical Assistance with performance based financial incentives to implement efficiency recommendations**



Survey Process

- Program offers two levels of surveys
- **Focused Survey**
 - Identify major water uses and potential water saving measures
 - Engineer spends a couple of hours on site
 - Screening tool to identify candidates for next survey



Electroless Copper Plating Line

Survey Process continued

- **Comprehensive Survey**
 - Available to customers with significant water savings potential that express strong interest in pursuing improvements
 - Engineer spends up to three days on site
 - Determines equipment costs and diagrams system modifications, including a before and after water balance



Plating Line

Lessons Learned

- Time to Complete Surveys
- Time to Install and Fine Tune Equipment
- Rate of Return Requirements
- Additional Utility Savings
- Engineering Support
- Publicity vs. Privacy



PROGRAM SUCCESS



Types of Projects Identified from Comprehensive Surveys

Type of Industry	Process Change	Estimated Annual Water Savings (MG/Y)	Payback after Incentive (yrs)
Electronic	Deionized water recycling system	18.8	8
Metals	Treat plating rinse water and recycle it to rinse baths	8.1	2.3
	Install conductivity meter control on process rinse tanks to reduce continuous flow rinse	6.6	0.5
	Deionized water recycling system	4.4	3
Textile /Laundry	New washers and final rinse water reuse system	3.6	38.3
	Wastewater treatment (nanofiltration) and reuse system	147.0	3.2
Food	New washing equipment	8.8	0.1
	Recycle rinse water, reduce rinse time, recover steam condensate	2.9	1.9
	Recycle rinse water, reduce rinse time	5.7	0.1
Defense	Use treated groundwater in cooling tower	29.4	0.25



Industrial Program

SUCCESS STORIES

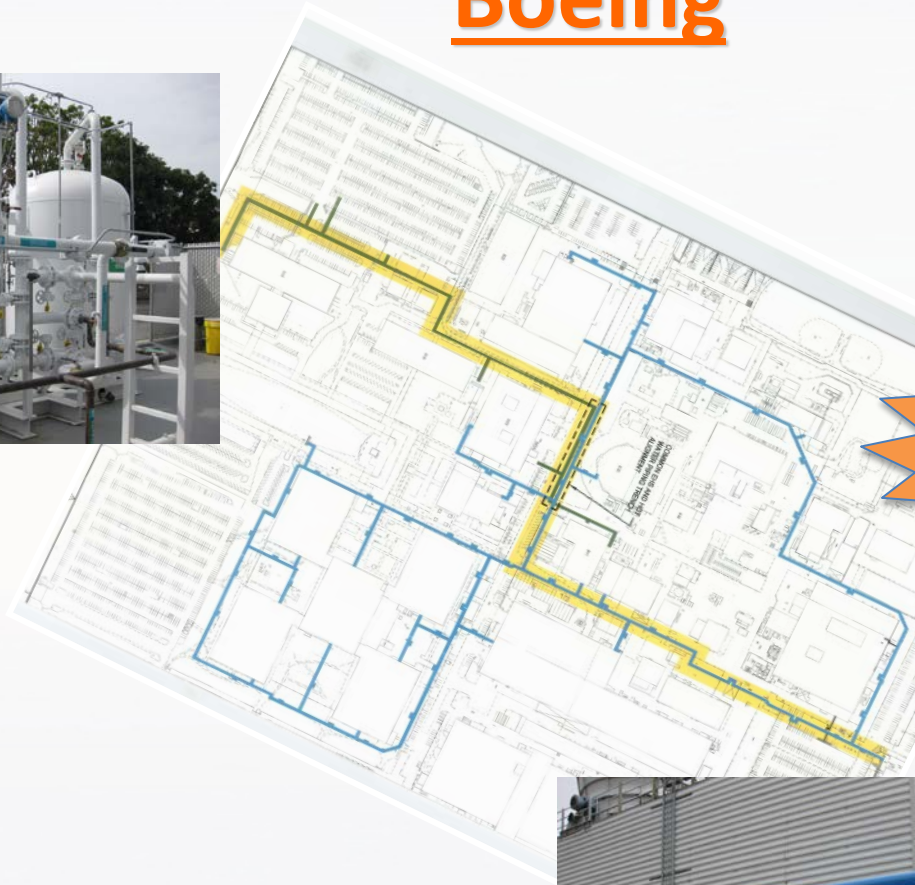


Recommendation

Marcel Electronics	SunOpta	Prudential Overall
<p><u>Process Improvement:</u> Installation of a deionized water recycling system for washing of circuit boards</p>	<p><u>Process Improvement:</u> Reverse flow strawberry washing system</p>	<p><u>Process Improvement:</u> Upgrade and laundry washing equipment and reuse of rinse water</p>
14 MGY	17.6 MGY	6.6 MGY



Boeing

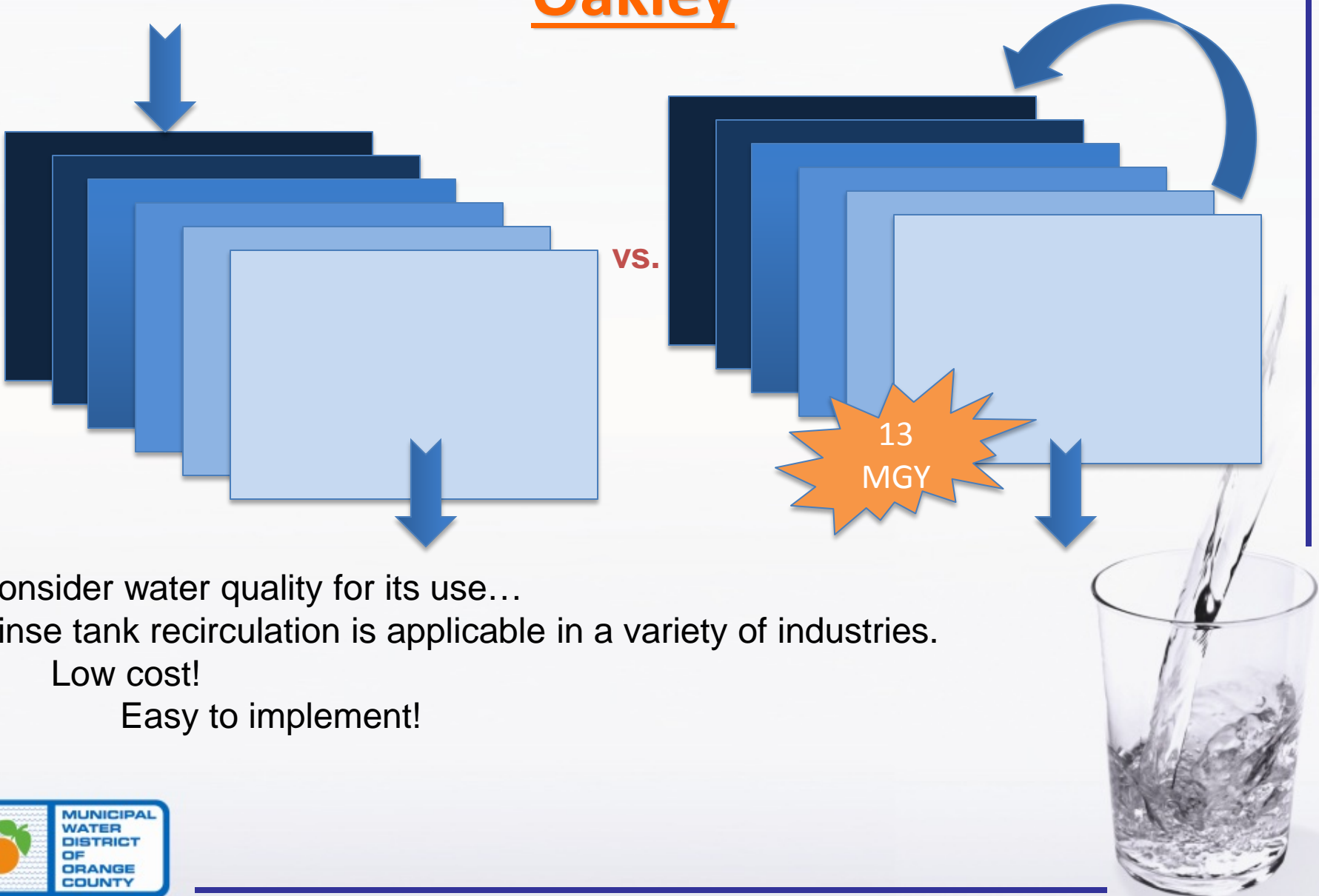


30
MGY

16
MGY



Oakley



Consider water quality for its use...

Rinse tank recirculation is applicable in a variety of industries.

Low cost!

Easy to implement!



Questions?

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