



# Nico Products



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## Organization Background

Nico Products is a metal plating company located in Minneapolis, MN. There are currently 120 employees at their 100,000 square-foot facility. Nico Products and its sister company Avtec Finishing Systems comprise the Lindgren Group, which has served as a leader in the plating industry since 1971. At Nico, heavy investments have been made in their operations to provide customers with a world-class metal finishing experience. These investments have resulted in approvals to ISO, Nadcap, ITAR, Federal Firearms Licensing Requirements, and RoHS/REACH Requirements. Some industries served by Nico include aerospace, defense, agriculture, and general manufacturing.



*“This internship really pushed me intellectually and socially. I met a lot of smart, interesting people that taught me a lot about each part of the electroplating process. This summer gave me a lot of valuable experience that I will use in my career and day to day life.” ~ DG*

## Project Background

On an annual basis, Nico Products uses 23 million gallons of water per year (gpy) and has 16 plating lines that offer a wide range of different metal plating options. There are over 400 tanks across these lines with approximately 25% heated. These tanks use 15.7 million gallons of water per year and lose about 2.2 million gallons to evaporation.

Nico Products did not have a complete water map at their location prior to the start of the internship. As part of this project, the MnTAP intern provided a detailed flow map for the company which in turn allowed for specific recommendations and their associated payback periods.

To reduce water consumption, this project investigated methods to reduce dragout, improve rinse water usage, and reduce evaporation. The recommendations associated with these methods have the potential to save Nico Products \$73,000 and 3.3 million gpy of water, along with 2,500 lbs of solid waste and 11,000 therms.

## Incentives To Change

The Lindgren Group was specifically interested in investigating water conservation efforts and reducing overall resource consumption. As the parent organization to both Nico Products and Avtec Finishing Systems, the respective projects provided a unique opportunity to investigate opportunities at both locations and share the associated learnings. This partnership allows The Lindgren Group to apply the associated water conservation methods across the organization and share collective success.

*“This was my first summer working with MnTAP. The program is well organized and run by professionals. The intern they selected for us was very personable, eager to learn and dove right into projects we don’t have the manpower for. We hope to take his findings and better ourselves at conserving water and overall make our facility a better steward to the environment.”*

*~ Alan Tousley, General Manager  
Nico Products*

# Solutions

## Increased Drain Times with Drainboards

To reduce the chemical loss and cross contamination of the tanks, it was recommended that Nico Products implements increased drain times and installs drainboards. Increasing the drain times will allow the racks to drip dry for longer. For manual lines, employees will need to be trained and coached to allow at least 5 seconds of drain time for each rack or barrel. For auto lines, this increase in drain times will need to be programmed into the system. Drainboards will help with returning liquid back to the original tank. By adding drainboards and extending drain times, 111,600 gpy of water and 2,500 lbs of solid waste could be saved with an annual savings of \$25,100.

## Install Conductivity Controls

Conductivity controls test the conductivity of the rinse water with an electrode. Once the conductivity reaches a pre-set value, the controller will add water to the tank via a solenoid valve. Currently, Nico uses flow restrictors to regulate flow. Adding conductivity controls has the potential to save 3.2 million gpy of water with an annual savings of \$38,600.

## Plating Floats for Barrel Line

The barrel line at Nico has an opportunity to implement plating floats for evaporation control. These floats sit on the surface of the tank as a flexible cover and allow barrels to pass through the barrier while reducing fumes, surface area, and surface temperature of the tanks. When the barrel leaves, they move back into place. The line

was chosen for this recommendation because the barrel provides a protective layer from the floats to and prevents interference from the floats on the plating process. Adding the plating floats to the barrel line has the potential to save 19,200 gpy of water and 11,000 therms with an annual savings of \$9,300.



Recommendation	Annual Reduction	Annual Savings	Status
Increased Drain Times with Drainboards	111,600 gal water 2,500 lbs waste	\$25,100	Recommended
Install Conductivity Controls	3,200,000 gal water	\$38,600	Recommended
Plating Floats for Barrel Line	19,200 gal water 11,000 therms	\$9,300	Recommended

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