

## Executive Summary

After visiting Prototron and studying their processes, TREE team members researched ways for Prototron to reduce waste. Many waste reduction options were considered; feasible opportunities with the greatest impact were selected. This report identifies 2 ways to reduce dragout, and explains that current rinse flow is too high. This report also outlines a new waste treatment system that will avoid generating F006 sludge and associated costs.

The opportunities and numbers in this report are the conclusions of the team and should be verified by Prototron staff. Opportunity descriptions begin on page 9. Calculations are shown in Appendix C.

The opportunities are: 1-Dragout reduction; 2-Rinsewater reduction; 3-Wastewater treatment by ion exchange with electrowinning of regenerant for copper recovery

### Projected annual savings from opportunity implementation

Up to **\$31,000** in process chemical savings.

Up to **\$6,000** in waste disposal fee savings.

Up to **\$18,800** in wastewater treatment chemistry savings.

Elimination of **11,000 pounds** of F006 sludge per year\*.

Up to **\$34,000** in savings on water and sewer fees\*\*.

### TOTAL

Up to **\$56,600** in savings after payback of treatment system (not including water / sewer savings)

Payback period for ion exchange / copper recovery waste treatment system with all reduction opportunities identified in this report implemented (not including water / sewer savings):

If new equipment is purchased = **8.4 month payback**

If used equipment is purchased = **6 month payback**

\* The new system may generate some hazardous waste on an irregular basis, this should be less than 500 pounds (one drum) per year.

\*\* Prototron does not pay for their water, it is part of their lease. This is the amount their landlord will save.