Our team is working with Plastic Plate Inc, a chrome electroplating facility located in Grand Rapids, Michigan. Their electroplating process produces waste containing heavy metals that need to be treated before being sent to the municipal wastewater treatment plant. We aim to improve their copper (Cu$^{2+}$) treatment system.

The current copper treatment system uses a steel wool process that is:
- Inefficient at filtering high concentrations of copper
- Incapable of recycling copper
- Labor intensive as it requires hourly monitoring of copper concentration, pH, and fluid level in the tank
- Uneconomical as it consumes and disposes 1600 pounds of steel wool every month

These are the possible solutions we are considering:
- Nanofiltration
- Ion exchange
- Photolysis
- A combination of various separation processes

![Flow Diagram](image1.png)

**Figure 1. Current Steel Wool Copper Removal Unit Flow Diagram**

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