**Partners in Pollution Prevention Intern:** Than Nguyen
**Major:** Chemical and Biomolecular Engineer
**School:** University of Nebraska-Lincoln

### Company Background

Omaha Steel Casting Company, LLC (OSCC) is recognized in the industry as a leading producer of high-quality steel and stainless steel castings for a vast array of end users. Their mission is to provide flexible, cost effective solutions for their customers on time, every time while maintaining the highest standards of quality.

### Project Description

OSCC uses silica sand and binder for their no-bake molding process. In 2016, they decided to do a secondary cleaning operation for their foundry sand to create a more environmentally friendly company. They started collecting sand from different locations throughout the process, and reclaimed it using the primary attrition shakeout system. Nguyen's main focus was to help the company identify and purchase a secondary attrition system for the second cleaning operation of the sand to reduce the amount of binder required for sand molds, to reduce the amount sand going to the landfill and to increase product quality.

Beside the sand reclamation project, Nguyen also worked on two other projects:

- Reuse spent foundry sand through Nebraska Department of Roads (NDOR)
- Improve lightning on production floor

### Pollution Prevention Benefits

The recommendations listed in this report will allow OSCC to reduce the annual cost of new sand purchasing, pep set binder purchasing, and reduce greenhouse gas (GHG) emissions to the environment.

### Results

The pollution prevention benefits are summarized in Table 1 below.

*Table 1: Pollution Prevention Results*

| Description | Annual Cost Saving | Annual waste reduction | Annual GHG reduction |
|---|---|---|---|
| **General Recommendation** | $11,000 | 1.25 tons solid waste | 20 $MTCO_2e$ |
| **Mechanical Attrition** | $45,000 | 650 tons solid waste | 45 $MTCO_2e$ |
| **Thermal Reclamation** | $56,000 | 900 tons solid waste | 60 $MTCO_2e$ |
| **Sand Recycle** | $12,000 | 60 tons solid waste | 6 $MTCO_2e$ |
| **Lightning** | $20,000 | 300,000 kWh | 300 $MTCO_2e$ |
| **Total** | **$90,000-$100,000** | **700-950 tons solid waste** | **370-385 $MTCO_2e$** |
| | | **300,000 kWh** | |