

Project Overview

Nebraska Industrial Assessment Center Intern: Zach Paasch

Major:

School: University of Nebraska-Lincoln



Summer Activities

This summer, I had the opportunity to work alongside students of different backgrounds and levels at the University of Nebraska-Lincoln. I am truly grateful for the opportunity to work with the NIAC here in Lincoln, Nebraska. Over the summer, I visited 5 companies on assessment trips and performed 7 assessment recommendations (ARs) related to the problems we noticed after analyzing the facilities' utility bills and processes.

Recommendations Description

In the first assessment, I participated in was in a facility produces drywall corner beads, metal lath, metal studs, and several other home applications. I wrote three ARs for this assessment, such as replace personal fans with HVLS fans, implement photocells on outdoor lighting to save energy, and install LED exit signs. On the second visit I was the lead analyst. On this assessment, I worked on utility accounting with the help of another intern. Additionally, I performed research and calculations regarding a brine reclamation system that we recommended they implement to regenerate softener salt brine and decrease maintenance. In the third I wrote two ARs; replacing some of the pedestal fans in the kitchen with HVLS fans and implementing a lower set point on their air compressors and integrate a centralized loop to maintain the new psi set point. The fourth assessment I participated in was to a cheese and whey production facility. And I prepared a replace v-belts with cogged belts on cooling towers recommendation on their softener salt systems.

Results

The pollution prevention benefits and results done by the intern are summarized in Table 1:

Table 1: Pollution Prevention Benefits and Results

P2/E2 Category	Annual Cost Savings (\$/year)	Annual Energy Savings (kWh/year)	Implementation Cost (\$)	Simple Payback (Years)	GHG Reductions (MTCO _{2e})
Replace Personal Fans with HVLS Fans	\$15,605/year	8,220	\$20,000	1.3	5.8
Upgrade Facility Exit Signs	\$157/year	946	\$225	1.4	0.7
Implement Photocell on Outdoor Lighting	\$53/year	868	\$57	1.0	0.6
Brine Reclamation System	\$478/year	-	\$3,660	7.7	-
Reduce Set Point Pressure of Air Compressor & Install Centralized Loop	\$750/year	11,544	\$9,475	12.6	11
Install HVLS Fans	\$4,625/year	4,477	\$8,178	1.8	4.3
Replace V-Belts with Cogged Belts on Cooling Towers	\$1,016/year	12,831	\$768	0.8	9.1
Total	\$22,684/year	38,886 kWh/year	\$42,363	26.6 Years	31.5 MTCO_{2e}