Project Overview

Nebraska Industrial Assessment Center Intern: Connor Herridge
Major: Mechanical Engineering
School: University of Nebraska-Lincoln

Summer Activities
Throughout the entirety of the summer, I had the opportunity to go on 6 assessments, worked on a total of 15AR's, and was lead for one assessment. The facilities I visited were the provider of design, tooling, machining, inspection, fabrication, and plastic injection molding services, Expanded Polystyrene (EPS) foam and other specialty plastics, wastewater treatment processes, metal finishing, tube fabrication, coating and insulation, adhesives and dairy products.

Project Description
My special project was how to determine if HVLS fans could be an AR, and if so, the proper questions to ask, information to gather, as well as resources to complete the AR. My HVLS AR caused me to work on my special project, since I realized how many moving parts go into HVLS fans. Robb Lierman was able to come out with me to LTD to give me a rundown of what questions he asks and why. This was especially helpful regarding placement and sizing recommendations for the fans.

Pollution Prevention Benefits
During my assessments, I worked on various areas which were focused on pollution prevention and energy efficiency. Some of these ARs are as follows: repairing the seal of the curing oven, implementing HVLS fans, insulating the injection molding barrel, cogged V belts versus V belts, LED, Ventilation of the blower room, VFD for the aeration basins, tax exemption for utilities, demand spike on a specific meter, exit signs, boiler Economizers, CHP, OPPD billing changes, and compressed air setpoint.

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

Table 1: Summary of Pollution Prevention Benefits

Project	Electricity Usage Savings (kWh)	Electricity Demand Saved (kW)	Therms Saved	Cost Savings	GHG Reduced ($MTCO_2e$)
Insulate Curing Oven	11,446	-	-	$288	10.9
Install HVLS Fans	14,581	81.7	-	$11,697	11.6
Insulate Injection Molding Barrels	113,608	-	-	$2,820	108
Replace V Belts with Cogged Belts	2,649	14.3	-	$300	2.4
Replace current lighting with LEDs	11,485	19	-	$854	78.3
Ventilate the Blower Room	43,581	-	-	$20,203	41.6
Utilize 100HP Blowers	222,189	483.4	-	$18,134	212
Install VFD to Blowers	45,745	243.3	-	$5,805	32.5
Apply for Tax exemption	-	-	-	$106,883	-
Replace Exit signs with LED alt.	210	0.3	-	$17	0.2
Install CHP system			0.2	$491,419	1,190
Add economizers to boilers	-	-	265,633	$252,135	1,413,168
Adjust Compressed Air Setpoint	15,705	94	-	$160	15
OPPD Billing Change	-	-	-	$1,019	-
Apply for Tax Exemption (OM)	-	-	-	$1,828	-
TOTALS	**481,199**	**936**	**265,633**	**$913,562**	**1,413,680**