

Project Overview

P3 Intern: Tanner Turek

Major: Mechanical Engineering

School: University of Nebraska-Lincoln



Company Background

McCain Foods was founded in Florence, Canada in 1957 by the McCain brothers. The “McCain” brand is well-known for appetizer production, and its product spans over 160 countries. The Grand Island McCain facility produces over 65% of McCain foods onion rings.

Project Description

The maintenance department at McCain Foods sought assistance in 2023 with their machinery and processes. Alternative, more energy efficient methods for cooling of electrical cabinet coolers were investigated. Ways to improve VFD documentation and decrease downtime were also investigated. Finally, implementation of recirculation loop to reduce food waste was investigated.

Pollution Prevention Benefits

The goal of the summer of 2023 was to improve efficiency of the machinery and systems. In turn, electricity, food waste, and downtime were reduced. Two of these implementations have sizeable capital costs, with a relatively quick payback. The other implementation requires no capital and has a generous cost savings opportunity. Additional or Indirect benefits are reduction of green house gas emissions, reduction of waste of raw materials and increase of efficiency and clearer communication.

Results

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

Table 1: Pollution Prevention Benefits and Results of the Project

Project	Annual Cost Savings	Implementation Costs	Payback Period	GHG Benefits (MTCO_{2e})
Cabinet Cooling	\$27,113	\$92,448	3.4 years	15
VFD Parameterization	\$2,529	\$0	none	none
Line J Recirculation Loop	\$150,033	\$227,619	1.5 years	114
Total	\$179,675	\$320,067	0 – 3.4 years	129