

## Project Overview

**Intern:** Rachel Gerdes  
**Major:** Chemical Engineering  
**School:** University of Nebraska-Lincoln



### Company Background

Hexagon Agility is a manufacturer of high-pressure epoxy resin and carbon fiber composite natural gas cylinders in Lincoln, Nebraska. These fuel cylinders are produced in a variety of sizes to fit a wide range of vehicles and fuel systems. The company, which employs over 300 people, operates 24 hours per day, 5 days per week in the three main production bays and 7 days per week in the warehouse.

### Project Description

During the summer of 2022, UNL P3 intern Rachel Gerdes dedicated time and effort to identifying ways to reduce the quantity of solid landfill waste produced by Hexagon Agility, particularly relating to the process of winding the tanks with carbon fiber and resin, which necessitates the collection of excess resin. A variety of recommendations were made, both general and specific. General recommendations involved setting specific sustainability goals and using grants to help achieve them, investigating utility reduction methods, and encouraging employees to be more involved in pollution prevention through incentives, training, and involvement in on-campus organizations. Individual recommendations required incurring initial and sometimes annual costs to replace materials used in the winding areas with reusable equivalents and planning to expand the recycling capabilities of the plant.

### Pollution Prevention Benefits

P2 benefits that Hexagon Agility could expect to see from these recommendations mainly include landfill waste reduction due to recycling and using reusable materials, leading to decreased landfill fees and less litter on company property. Implementing all the recommendations would result in an annual plant-wide 244-ton decrease in landfill waste production with a corresponding 1,300 MTCO<sub>2</sub>e reduction in greenhouse gas emissions each year. Cost savings also result from the suggested actions in this report totaling nearly \$60,000 per year. Some of the recommendations also increase worker safety and comfort. The motto of Hexagon Agility is ‘clean air everywhere,’ and these suggestions help realize that vision and align the manufacturing practices of the company with its stated values.

Table 1 summarizes the costs and reductions of the combined individual recommendations contained within each management report.

**Table 1.** Summary of management report annual savings and waste reductions

<b>Report</b>	<b>Cost Savings (\$/year)</b>	<b>Landfill Waste Reduction (tons/year)</b>	<b>GHG Reduction (MTCO<sub>2</sub>e/year)</b>
General Management Report	\$0	3.6	0.3
Wind Areas Management Report	\$59,600	240	1,300
<b>Total</b>	<b>\$59,600</b>	<b>244</b>	<b>1,300</b>