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AJINOMOTO HEALTH & NUTRITION NORTH AMERICA, INC. 28-WEEK COOP PROJECT



EDDYVILLE

COMPANY PROFILE:

Ajinomoto is a Japanese based food and seasoning manufacturer dedicated to improved health and eating habits, with more than 34,000 employees worldwide. At its Eddyville, Iowa, facility, Ajinomoto Health & Nutrition North America, Inc. operates a single shift with more than 200 employees in three sections. Ajinomoto Food Ingredients (AFI) produces monosodium glutamate, which is used as a seasoning. Ajinomoto Heartland, Inc. (AHI) produces amino acids for animal feed, including lysine, threonine, and tryptophan, while the Technical Engineering Center United States (TECUS) focuses on research and development.

PROJECT BACKGROUND

The primary focus of this 28-week intern project at the Eddyville site is to strengthen the organizational system for tracking crucial permitting data on emission points. Better organization and collection of information and an improved interface will reduce the amount of time required to manually perform tracking. Additionally, having the data electronically will provide more accurate, real-time data, enabling better analysis. Ajinomoto requested that the first half of the project focus on providing more comprehensive data by inputting data from the process control systems into its software tracking system. In the latter half of the project,

the intern will use the gathered data to identify and assess improvement opportunities to reduce utility usage.

INCENTIVES TO CHANGE

On a global level, Ajinomoto is committed to improving human health through better nutrition and promoting environmental stewardship. Locally, the company strives to be a productive and responsible neighbor, contributing to a healthy community. Ajinomoto has pledged to reduce its environmental impact 50 percent by 2030. In particular, reducing utility usage will result in significant financial benefits and improved environmental performance.





Rainwater Collection: Ajinomoto has a storm drain system that sends rainwater to various outfalls where the water is released into a creek. This water could be collected and used in various processes throughout the site where water is needed. Although the rainwater may need treatment, it is likely more cost effective to filter and treat collected rainwater than well water. A proper water collection system can reduce the amount of water that is needed from wells, reducing utility usage and environmental impact. Currently, the total area and runoff coefficients of each outfall are being used to estimate potential savings.

Next Steps: During the last 16 weeks of the internship, data will continue to be collected to determine economic viability of the proposed projects. The largest focus will be placed on the water softening project, due to its large scale and great opportunities for cost savings and environmental impact reduction. Investigations into other potential projects will also be performed.

A final case summary for this project will be posted on the Pollution Prevention Intern Program website at www.iowap2interns.com in January 2024.

PROJECTS

Water Softening: Makeup water is required for any cooling tower system. The AHI cooling tower system uses water that could be improved through water softening. Softening would result in a reduction of calcium scale build up throughout the process and also improve heat transfer efficiency. Scale build up causes a loss of efficiency and can even shutdown a process. Thus, the heat exchangers need frequent cleaning to prevent a buildup of scale. Softening the water would increase the cycles of concentration in the cooling towers, allowing for decreased water usage. Data is being collected to model the energy loss from AHI's heat exchangers and calculate projected savings.

Emission Point Data Collection: Ajinomoto operates under permits that list emission limits. By ensuring ideal conditions are maintained, particulate emissions will be below permitted limits and ensure pollution prevention. Data for this equipment, which is stored in the data historian software PI Vision, can be imported and organized into Microsoft Excel for analysis. Proper monitoring and data collection of these systems reduces environmental impact and assists Ajinomoto in meeting its air permit emission standards. Excel sheets have been created to store the desired information. This project is projected to be expanded to other equipment in the future.

Compressed Air Leak Repairs: Ajinomoto makes extensive use of compressed air in a variety of equipment. Although essential to the process, compressed air is costly and requires a large amount of electricity to produce. Throughout Ajinomoto's factories, there are hundreds of points where compressed air leaks may be present. Identifying and fixing air leaks will lead to large savings and reduced environmental impact. Currently, a compressed air audit is planned for October during the biannual shutdown.

