

## ADVANCED MANUFACTURING OFFICE: INDUSTRIAL ASSESSMENT CENTERS

### Energy Saving with Ragan & Massey

Ragan & Massey has recently partnered with the Louisiana State University Industrial Assessment Center (LSU-IAC) for an assessment of their facility. LSU-IAC is committed to helping local industries improve their energy efficiency and sustainability.

#### Assessment Benefits

- The report identified a total cost saving of \$153,629 per year and an increase in overall productivity with automation!
- The total implementation cost is \$150,216 which leads to an average payback period of 0.98 years.
- The implementations of our team's recommendations would reduce J&M Industries' carbon dioxide emissions by 12.08%.

#### Summary

Through the Industrial Assessment Center at Louisiana State University, Ragan & Massey, an herbicide company located in Louisiana, will save a significant amount of money by implementing some of the potential recommendations found by the team. The six assessment recommendations together represented a total cost savings of \$153,629/yr., which is 140.25% of the current total utility costs. The total implementation cost was estimated to be \$150,216, yielding a payback of 0.98 years. If all are implemented, these measures will result in an annual reduction of 40 tons/yr. in carbon dioxide emissions, which is 12.08% of current emissions.



Ragan & Massey produces herbicides that kills growing weeds and prevents new growth. *Photo from Ragan & Massey, retrieved from raganandmassey.com*

#### Ragan & Massey

Ragan & Massey produces herbicide as their principal product. The process flow of the facility starts with mixing the mono-isopropyl, water and acid in the chemical plant. These chemical mixtures are then sent to the holding tanks of the bottling plant. Various mixtures are fed from the chemical plant to be blended with the required specifications. Once the blending of the mixtures is completed, mixtures are then sent to the bottling line. After that, several workers pack the bottles and put them in the pallet. After the product is packaged, it is stored in the warehouse and is shipped based on customers' purchases.

#### Facility Highlights

- This site is a part of LSU-IAC rural outreach initiative to better help industries in remote areas of the state.
- Annual production for this herbicide production facility is 10,000,000 pounds/year.
- Produces premium-quality herbicide to help customers achieve healthy and productive homes, lawns, gardens, and farm fields.
- The facility is already working towards going green with their partial implementation of LED lights, the use of daylight and cogged V-belts.

#### Evaluation Approach

The LSU-IAC team consisted of six engineering students and three assistant directors. Once at the Ponchatoula, Louisiana site, the team worked with plant management to tour the facility and identify areas of possible recommendations. After a brief meet, students revisited potential recommendations to collect data for the final report process. The assistant directors worked with plant management on identifying areas of

concern for additional recommendations. The company was pleased to have the LSU teams work with Ragan & Massey to offer energy efficiency recommendations. The LSU team finalized and submitted the report August 14<sup>th</sup>, 2021 and has since coordinated with Ragan & Massey on the implementations of the recommendations.

## Eliminating Leaks for a High Payback

LSU-IAC discovered an easy fix with a quick and high payback when touring the facility, which was to eliminate leaks in compressed air lines. The students detected four air leaks throughout the facility, with the intensity ranging from 45 to 59 dB each. Repairing these leaks has the potential to yield significant energy savings. Fixing these leaks will save the company \$4,148 per year with an implementation cost of only \$450. To fix

these leaks as well as prevent further ones from occurring, the team recommends that Ragan & Massey implements a regular leak maintenance program. Spending a few minutes every now and then to check for air leaks could save the company a significant chunk of their energy bill!

## Other Recommendations

While eliminating air leaks provided a quick and easy payback for Ragan & Massey, the LSU-IAC team provided the company with five other recommendations which each have a payback period of

under two years. Some of these recommendations provide large kWh savings while others increase productivity. AR-1 was to reduce the air compressor discharge pressure, which has a quick payback. AR-3 adjust the chill water temperature to the highest value, which also has a quick payback period. AR-4 was to utilize higher efficiency bulbs, which saves 79,277 kW/year. AR-5 was to install an automated packing system, which would improve productivity. Finally, AR-6 was to utilize energy-efficient belts.

## Recommendations Presented by IAC

Assessment Recommendations	Annual Resource Savings	Total Annual Savings	Capital Costs	Simple Payback
Eliminate or Reduce Compressed Air Usage	3,375 kWh	\$425	\$25	0.06 yrs.
Eliminate Leaks in Compressed Air Lines	32,977 kWh	\$4,148	\$450	0.11 yrs.
Adjust Chill Water Temperature to the Highest Value	7,800 kWh	\$981	\$250	0.25 yrs.
Utilize Higher Efficiency Lamps and Ballast	79,277 kWh	\$9,971	\$5,165	0.52 yrs.
Install Automatic Packing Line		\$137,875	\$144,000	1.04 yrs.
Utilize Energy-Efficient Belts and Other Improved Mechanisms	1,819 kWh	\$229	\$326	1.42 yrs.
Total	105,171 kWh	\$153,629	\$150,216	0.98 yrs.



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