



New York State Pollution Prevention Institute

CASE STUDY

RIT has a long history of partnership with industry to improve production processes, enhance recycling and reuse and reduce the use of hazardous materials. The following case study exemplifies these efforts and showcases expertise that can be brought to bear through the New York State Pollution Prevention Institute.

Lean, Energy & Environment (LE2) Analysis and Surface Cleaning Assessment for Tecmotiv (USA) Inc.

The following project was funded by a grant from the New York State Office of Science, Technology & Academic Research (NYSTAR) and Empire State Development Corporation (ESD).

Client

Tecmotiv USA Inc. (Tecmotiv), located in Niagara Falls, NY, fabricates and remanufactures quality engineered products and spare parts for the maintenance of virtually all classes of military vehicles.

Problem

Because the vehicle parts and assemblies that Tecmotiv remanufactures are very dirty, effective surface cleaning operations are critically important. Tecmotiv was experiencing difficulties cleaning parts consistently and cost-effectively. In addition, surface cleaning operations presented a significant bottleneck, which was highly undesirable as the company wished to expand its production capability.

Objectives

Identify the specific source of production bottlenecks and improve the effectiveness and consistency of surface cleaning operations at Tecmotiv.

Work Performed

RIT collected data on parts, cleaning processes, and production capacity to identify cleaning requirements. RIT then identified alternative surface cleaning technologies worthy of further consideration and cleaned actual parts from Tecmotiv in production-scale cleaning equipment in its Surface Cleaning Technology Evaluation Facility, as well as off-site locations. Test results were used to identify which alternative cleaning technologies were technically feasible and the economic feasibility of these technologies were evaluated. Workflow processes related to cylinder remanufacturing operations were evaluated using Lean, Energy & Environment (LE2) analytical tools to identify the best alternative processes, and estimate annual savings obtained through their implementation.

Results

RIT staff identified 33 separate cleaning processes used by Tecmotiv and prepared recommendations for improving these processes. In addition, the LE2 analytical tool was used to evaluate the cylinder remanufacturing process in detail. By adopting alternative strategies developed by both RIT and Tecmotiv personnel, the following annual savings were realized for just the cylinder remanufacturing process.

- Savings in operating costs of \$64,335
- Reduction in electricity use of 32,709 KWH
- Reduction in water use of 1,480 gallons
- Reduction in generation of 5,791 pounds of non-hazardous waste
- Reduction in 3,631 pounds of abrasive media
- Reduction in 259 gallons of non-hazardous wastewater
- Reduction in 41 gallons of detergent

Although this part type consumes a disproportional share of resources, it should also be noted that a single engine remanufactured by this company contains thousands of parts. Therefore, actual savings from this project for all parts and processes evaluated are significantly higher.

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