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

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
Data was collected on parts, cleaning processes, and production capacity to identify cleaning requirements. Alternative surface cleaning technologies worthy of further consideration were then identified, and actual parts from Tecmotiv were cleaned in production-scale cleaning equipment in NYSP2I’s Surface Cleaning Technology testbed, 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
33 separate cleaning processes used by Tecmotiv were identified, recommendations were prepared for improving these processes. In addition, the LE2 analytical tool was used to evaluate the cylinder remanufacturing process in detail. By adopting alternative strategies, the following annual reductions were realized for just the cylinder remanufacturing process.

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

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