

Supporting Manufacturing Leadership Through Sustainability

E3: Economy, Energy, and Environment Engagement Outcomes



John Anderson - CMTC



CMTC is Committed to Improving the Competitiveness of So. Cal Manufacturers

- Non-profit consulting organization
- Serves over 700 manufacturers per year
- All projects surveyed by a third party
- Provides consulting services since 1994

MEP in California



E3 Participation Process for Manufacturer

- Agrees to scope of work
- Contributes cost share for the customized E3 project
- Makes necessary time commitment and contribution to E3 assessment activities
- Collects and reports appropriate E3 metrics
- Benefits from:
 - sustained cost savings
 - increased competitiveness
 - greater employee satisfaction
 - reduced environmental impact

Client:

Lekos Dye and Finishing



P2 Partners:

EPA Region 9

West Basin Municipal Water District

**Pacific Northwest Pollution Prevention
Resource Center (PPRC)**

Additional Resources:

Health and Safety Consultant

CMTC Delivery:

Lean Assessment

Energy Assessment

Environmental Review

Background

- Lekos is a textile dye and finishing company – family owned; \$10M/year
- 75 employees in a 60,000 sq ft building in Carson, CA.
- Fabric finishing has been on the decline in California due to environmental concerns and related regulations and costs
- High levels of chemical and dye create environmental challenges
- Pressure to reduce water consumption and wastewater discharge
- Utility and water expense alone are at \$2.4M/yr = 25% of costs
- Chemicals and dyes account for another 20%. Labor is 30%

Economy Benefits

- Improve on-time delivery and reduce floor space required for material storage
- Tools – ‘5S’ to organize plant; analysis of order patterns to reduce number of dye machine cleanings due to revised scheduling
- Costs – minimal; mostly employee training.
- Savings – primarily increase in capacity with no additional equipment requirements

Additional: Reduce A/R Aging = \$200K cash flow

Energy Benefits

Recommendation: Upgrade dye tank water pump and mixing motors with variable-frequency drives (VFD)

- Savings - energy: Reduce electricity peak demand by 97KW; consumption by 708kWh/yr
- Capital cost (est): \$144,000
- Incentives available: \$66,000
- Savings, energy costs: \$100,000/yr
- Payback Period: One year, with incentives

Additional: Solar, Boilers/Co-gen, Lighting upgrades

Environmental Benefits

Recommendation: Upgrade 8 Dye Machines; Reclaim dye water

- Savings – water: Reclaim = 42M gal/yr; Dye machines = 32M gal/yr; Total = 74M gal/yr = 51% reduction
- Capital cost (est): \$2,000,000 total
- Incentives available: \$250,000 from MWD
- Savings – costs: \$300,000/yr water + \$60,000/yr sewer
- Payback Period: 5 years with incentive offsets

Additional: new boilers/recovery will reduce steam losses

Safety/OSHA Benefits

Recommendations:

- Institute on-site safety committee to review plans
- Improve OSHA-required written safety plans, inspection records and record-keeping procedures
- Improve Personal Protective Equipment (PPE) available to employees and training on use; plus hazard recognition
- Improve machine guarding Lockout/Tagout (LO/TO)

Benefit: Increase safety and avoid non-compliance

Client:

Pocino Foods



P2 Partners:

EPA Region 9

**Pacific Northwest Pollution Prevention
Resource Center (PPRC)**

Additional Resources:

Health and Safety Consultant

CMTC Delivery:

Financial Review

Lean Assessment

Energy Assessment

Background

- Pocino Foods makes specialty meat products, family owned; \$47M/yr
- Manufacturing plant established in 1970
- 190 employees in a 85,000 sq ft building in Industry, CA
- Plant incorporates the best and safest environmental controls
- Management is very progressive but E3 assessment proved to be useful in identifying additional areas where improvements can be beneficial to their operations

Economy Benefits

- Improve on-time delivery and reduce floor space required for material storage
- Tools – ‘5S’ to organize plant; analysis of order patterns to reduce number of dye machine cleanings due to revised scheduling
- Costs – minimal; mostly employee training
- Savings – primarily increase in capacity with no additional equipment requirements

Additional: reduce avg A/R Aging from 24 days to 21 days = \$295K cash

Energy Benefits

Recommendation: Boiler Improvements

- Savings: \$26,735 energy cost (33,419 therms)
- Capital Cost to Implement: \$67,000
- Gas Co. Incentive: \$33,419 (\$1/therm saved)
- Annual cost savings: \$27,000
- Payback Period: 1 Year

Additional: New boilers, Solar, co-generation, refrigeration retrocommissioning, lighting upgrades

Environmental Benefits

Recommendation: Reduce water usage and discharge

- Changes to washing techniques for pepperoni and sausage – use hot water rather than cold water which congeals the fat; hot water is available through a heat exchanger with no additional heating required
- Repairs to wash-cycle plumbing – leaks at many joints
- Reduce consumption from 9,000 gal/cycle to 1,000 gal/cycle (total of 4M gal/yr saved)
- Capital cost (est): \$2,000 total + minor training
- Savings: \$20,000/yr (water + sewer)
- Payback Period: 1 month

Additional: clarifier to reduce lipids discharged to sewer

Safety/OSHA Benefits

Recommendations:

- Hazard communication training for employees
- Improve placement of hazard warning signs
- Provide documentation for periodic inspections
- Update site mapping for emergency evacuations
- Identify and mark unsafe confined spaces
- Implement a contractor safety program

Benefit: Improve OSHA-related documentation to avoid non-compliance

