



GOODRICH

**Cost Reduction,
then Impact Reduction**

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LEAN Manufacturing (Toyota) integrated into Management Systems prevents pollution:

- “Plan-Do-Check-Act”.
- “Develop, Measure, Analysis, Implement, Control”
- “Bias for Action” = “my bias for my action”.
- Environmental Programs are:
 - Non-Valued Added, but necessary.
 - Documenting conformance = costs of Good Quality.
 - Environmental Impacts and Regulatory Errors = costs of Poor Quality.
- **\$1000s in compliance cost savings just waiting.**

The Seven Types of Waste:

Who can name any 1 of the 7 wastes?

- **Inventory** (unused tools, materials, storage, people)
- **Overproduction** (unsold, undelivered info./product)
- **Transportation** (move material/ people back and forth)
- **Processing** (create, develop, undesired features)
- **Defects** (errors, missed features, rework, rewrite scrap)
- **Waiting** (for answers, materials, information, approval)
- **Motion** (go to and from information, tools, materials)

Perhaps, not the waste you were expecting?

- Metrics document reality of current or past performance.
- Two categories:
 - **Results Measures** (How was your trip?)
 - **Driver Measures** (Did you take the best route?)
- Objectives and Targets are expressed as improved metric at a future date.
- Metrics used to prioritize improvement Objectives.
- Evaluate effectiveness of Objectives and Targets.
- Without clear performance metrics, there will not be sustainable improvement.

GOODRICH How to get there- Value Stream Mapping

What is important to the customer is at the top of the agenda, every day.

- Value Stream Mapping clarifies current state and the improved future state.

What matters to your customer, are built into the subjects of your EMS Objectives and Targets :

- Current State - waste still in.
- Future State - waste removed.
- Proactive Management Systems.
- Communicates how products, services and information flow to the customer.
- On-Time Delivery.
- Supply and Product Flexibility.
- Supply and Product Reliability.
- Life-Cycle Costs.

Every employee shall be engaged in improving the business every day.

- **Create environment and processes for daily engagement.**
- **Communicate expectation of daily participation.**
- **Recognize participating employees.**
 - **Each day, have a message focused on achieving the least waste value stream.**
 - **Participation without direction is waste; it leads to defects, over production and unneeded motion.**

What do we do:

- **Goodrich goal:** 20% cost reductions for \$40 million in cost savings over 5 years.
- **EMS Project Goals:** Reduce environmental compliance costs while improving compliance and impact of our programs.
- **To do this, we:**
 - Evaluate basis for regulatory requirements.
 - Eliminate avoidable costs of compliance.
 - Improve our compliance monitoring practices.
- **Control process improvements to sustain.**
- **Capture compliance cost savings.**

Project Goal: Reduce the costs of complying with air pollution control requirements while improving (or hold neutral) environmental impacts of our 2005 baseline of 23 permitted air pollution sources.

- **To do this, we:**
 - Evaluate the basis for the regulatory requirements for air pollution sources.
 - Eliminate avoidable costs in our compliance monitoring system.
 - Improve our compliance monitoring practices.
- **\$50,000** in annual compliance cost savings.

Project Goal: Reduce the costs of complying with hazardous waste requirements while improving (or hold neutral) environmental impacts associated with operating at our 2006 baseline of pounds waste produced.

- **To do this, we:**
 - Evaluate the basis for the regulatory requirements.
 - Change, verify, eliminate characteristic components from processes; and; therefore, waste streams.
 - Identify materials for reuse and recycle within manufacturing operations.
- **\$150,000** in material and waste disposal cost savings.

Project Goal: Reduce the costs of complying with water discharge requirements while improving (or hold neutral) environmental impact associated with operating our 2006 manufacturing water demands.

- **To do this, we:**
 - Evaluate the flow rates at high use areas.
 - Process changes for on demand controllers; and filter, cool and reuse systems.
 - Non Contact Cooling discharge down 90%.
 - Sanitary discharge down 50%.
- **\$45,000** in water, equipment and energy to pump water cost savings.

Project Goal: Reduce the costs of energy consumption while improving (or hold neutral) manufacturing needs associated with operating our facility.

- **To do this, we:**
 - Evaluate the energy use rates within the manufacturing plant and office.
 - Process changes for reduced air leaks, replaced lighting systems, replaced cooling/heating systems, recycled heat, and reduced water and air flows through on demand systems.
- **\$75,000** in energy cost savings.



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