

Applying 6 Sigma and Lean Manufacturing Principles to EHS

**NAEM Building Business Value Workshop
December 1-2, 2004
St. Charles, Illinois**


Session Agenda

- Introduction to Six Sigma
- Speaker Presentations:
 - John Borchardt, Rockwell Automation
 - Patricia Ludewig, Caterpillar Inc., Technology & Solutions Division
- Q&A for speakers

Introduction to Six Sigma

- What Six Sigma is
- Why use Six Sigma
- What Six Sigma does
- What Six Sigma tells us
- Phases in Six Sigma

What Six Sigma is

- A **process** to:
 - improve your business where you design and monitor everyday business activities to:
 - Minimize waste and resources; while,
 - Increasing customer satisfaction Leads to value!
 - Guide companies into making fewer mistakes
 - Eliminate lapses in quality at earliest **possible** occurrence
 - Focus on the process that creates or eliminates the defects rather than the defects themselves
 - Provide specific methods to re-create the process so that defects and errors no longer arise
 - Attack “variation” during the design of products and services

Why use Six Sigma

- It's about making money!
- Implementing it will help your:
 - Company
 - Increase market share
 - Decrease costs
 - Grow profit margins
 - Location
 - Simplify systems and processes
 - Improve capabilities
 - Find ways to control systems and processes permanently


What Six Sigma does

- Asks new questions → we're looking for a new direction
 - Question every process, number, step in the process
 - Asks tougher and tougher questions that:
 - Lead to tangible, quantifiable answers
 - Produce profitable results
- Uses metrics to calculate the success of everything a company does
- Forces companies to let go of bad habits

What Six Sigma tells us

1. We don't know what we don't know
2. We can't do what we don't know
3. We won't know until we measure
4. We don't measure what we don't value
5. We don't value what we don't measure

Phases in Six Sigma

- **Recognize**
 - **Define** (the problem)
 - **Measure** - what and how, where errors occur, impact of faulty measurement
 - **Analyze** – statistical methods and tools used to explain “defects”
 - **Improve** – discover key variables that cause the problem
 - **Control** – ensure the problem does not reoccur by continuously improving
 - **Standardize**
 - **Integrate**
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- Core Phases

John Borchardt

- Six Sigma/Lean Mfg at Rockwell Automation:
 - Staying focused in a rapidly changing environment
 - Leading change – the Human Factor side
 - How we identify our value-add opportunities
 - Using the Lean-6 Sigma tools to provide and measure value
 - Current within the EHS function and across-the-organization initiatives and opportunities

Patricia Ludewig

- Case study from Caterpillar:
 - Energy Management at T&SD
 - Data Sources
 - Tools
 - Results & Lessons Learned
 - Establishing the OSCAR Survey Process at T&SD
 - What Data ?!
 - Tools
 - Results & Lessons Learned