Background & Challenge
- Lean manufacturing concepts are employed by numerous businesses and industry sectors with a goal of becoming more productive.
- Green describes initiatives designed to reduce environmental impacts.
- Safety is promoting the health and well-being of all employees on and off the job.
- Often, these activities function in organization silos resulting in waste and inefficiency.

Lean & Green Are Aligning
- Recognizing the synergy of lean manufacturing and green, EPA is promoting efforts among state and federal agencies.
- A 2003 report (68 pp.) details numerous benefits of lean initiatives—see www.epa.gov/lean/leanreport.pdf
- A quick Internet search will show numerous hits for lean and green—with safety rarely mentioned.

Waste Is a Key for Integration
- Identification and elimination of the seven forms of lean wastes is the enabler for green and safety. These can be married with:
  - Safety waste—injury and illness;
  - Environmental waste—air, water and solid.

Lean Is an Enabler for Green & Safety
- Many people hear the term lean but have little understanding of its true meaning.
- There are two fundamentals to lean: 1) identify waste; 2) eliminate waste.
- Properly done, the integration of lean, green and safety will lead to an improved organizational culture for several reasons:
  - All require the demonstrated leadership of top executives.
  - Lean initiatives should begin in the office since it is the home turf for leaders and staffs who make decisions impacting safety and environment.
  - Lean business systems and processes not only make the workplace safer and more productive, but emotional stress and strain are greatly alleviated.
- Teamwork and standardizing nonstandard work result in work that is faster and easier to perform with less training; lean should begin in the office.

Lean in the office
Examples of lean waste in the office include:
1) Correction: transaction errors
2) Overproduction: printing too many copies
3) Motion: excess motion of personnel to complete a task
4) Material movement: movement of material or information that adds no value
5) Waiting: meetings start late and/or run over allotted time
6) Inventory: ordering more supplies than necessary
7) Process: often cumbersome or nonexistent (e.g., unnecessary reviews or approvals)

Culture change
- Top management must lead and infuse vision, values and new skills into the management workforce.
- Lean tools, processes and skills that must be learned as part of the culture change include:
  - 5S
  - Value stream mapping (a process that unlocks the hidden waste of office and business systems)
  - Standardized work
  - One-page reports
  - Knowledge folders
  - Lean thinking
  - Lean metrics
  - Lean communications
  - Problem solving (e.g., 5-why analysis, fishbone)
  - Safety (on and off the job for all staff, including those in manufacturing, sales, service)
  - Risk management
- Repetition builds skills and changes thinking by personnel challenged to “act their way to a new way of thinking.”

Conclusion
- The current state is both threat and opportunity for SH&E professionals
- Doing nothing may result in safety and health moving to the side of the more forefront issues of lean and green.
- Opportunity exists to make a business case for leaders offering culture change via leading lean in the office. Benefits include:
  - Immediate operational improvements, answering the age old question of “how can we show value?”
  - Lean becomes an enabler for green and safety.
  - Culture change opens doors for safety, health and the environment in the concept and design stages of new products or process.