

Lean Enterprise Division

April 2009 Highlights

- 2 Lean Enterprise Division at Renewable Energy Summit
- 4 Channel Flow
- 6 Lean Sessions at 2009 World Conference
- 7 Lean in Life (LiL)
- 8 Note From the Editor

Last Paper Issue of *Lean Enterprise News*



Paper issues will continue to be sent only upon

request—send a message to lmilanowski@asq.org with “Paper Lean News” in the subject line if you would like to continue to receive a paper copy.

Chair’s Message

Hello Lean,

I am writing this message during my flight home from Phoenix and I’m reflecting on all of the events of the Lean Six Sigma Conference. This was by far the best conference I have had the pleasure of attending. There were numerous presentations on lean along with some Six Sigma and Lean Six Sigma. The attendance was also nothing short of spectacular, especially considering the state of the economy. We were about 20 people shy of last year’s attendance. I would also like to thank everyone who stopped by the LED booth and hospitality suite.



If you did not attend, you missed a great couple of days. Mark your calendars now for March 8 – 10, 2010, as we will return to Phoenix for another great conference. You’ll find additional information from this year’s conference in this issue.

And, keeping with the topic of conferences, the World Conference on Quality and Improvement is rapidly approaching. This year the conference is May 18 – 20 in Minneapolis. There will be activities Saturday and Sunday, May 16 and 17, as well. One activity scheduled for Sunday is a Lean Enterprise Division networking event, 1:30 p.m. – 5:00 p.m. in the Hyatt Regency. Please plan to stop by as many of the Leadership Team members will be available to meet with you.

The new and improved LED Web site (asq.org/le/) is now up and running. Please check it out and let us know what you think. You’ll find all kinds of LED information on the site.

We now have LED LinkedIn and Facebook networks, which are accessible from the Web site. Check them out.

Also, check out the March issue of *Quality Progress*. Chad Vincent, LED’s treasurer, wrote the feature article. Not only does he do an excellent job in keeping us from needing a “bail out” package—but he is an excellent writer as well. Congratulations, Chad.

In closing, I just want to say that the Lean Enterprise Division is *your division*. Please feel free to contact us with any feedback you have. We need to know what you want from the division and how we are performing in providing what you want, but we cannot improve if we do not hear from you. Please stop by the LED networking session May 17 if you are in Minneapolis or send any LED team member a note with your input.

Happy spring to everyone and as always, “Come lean with us.”

Wayne Paupst

Chair, Lean Enterprise Division
waynepaupst@gmail.com



Lean Enterprise
Division

Lean Enterprise Division Contacts

Wayne J. Paupst, chair
BES Consulting
waynepaupst@gmail.com

Kiami Rogers, chair-elect
Maxim Integrated Products
krogers_asq@verizon.net

Frank K. Murdock, VoC & membership
Kobalt Partners LLC
fkmurdock.kobalt@gmail.com

Robert M. Johnson, past chair
Tyco Fire Suppression & Bldg. Prod.
jobbymjohnson@yahoo.com

Robert W. Damelio, BoK & certification
The Bottom Line Group
rwdamelio@gmail.com

David Behling, programs
Velvac, Inc.
dbehling@velvac.com

Tammy Lynn Miller, secretary
Plexus
tammymiller@plexus.com

Chad E. Vincent, treasurer
Baxter Healthcare
chad_vincent@baxter.com

Wendy Gomez, newsletter editor
Danmer, Inc.
wendy.gomez@danmer.com

Alan Mendelssohn, discussion board
Resources Global Professionals
asmquality@aol.com

Don Smith, education
Net Results, Inc.
don@netresultsgroup.com

Adil Dalal, education
Pinnacle Process Solutions, Intl.
adil@pinnacleprocess.com

Linda Milanowski, staff liaison
American Society for Quality
lmilanowski@asq.org

Lean Enterprise Division at Renewable Energy Summit

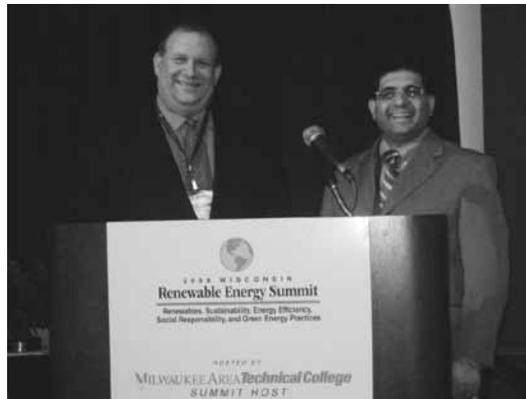
by *Adil F. Dalal, CQE, PMP, Co-Chair, Education Committee, LED*

As a representative of the Lean Enterprise Division, I had the honor of presenting two papers on lean technology at the Renewable Energy Summit in Milwaukee, WI, March 25-28. ASQ HQ and the Lean Enterprise Division sponsored the event. The event drew more than 2,000 participants, including government officials (senators, representatives, city officials, and other dignitaries from Wisconsin), 'energized businesses' of all sizes, and a significant number of young students from various local colleges. A few highlights of this event were:

1. More than 200 speakers presented on outstanding topics in all areas of energy (solar, wind, bio-fuel, nuclear, etc.), green technology, sustainability, energy efficiency, education, certification, and most important, the topic of social responsibility, championed by ASQ and others.
2. A keynote speech by Dr. James E. Hansen, director, NASA, Goddard Institute of Space Studies, a pioneer and world-renowned scientist on climate change. His topic "*Climate Threat to the Planet: Implications for Energy Policy and Intergenerational Justice*" focused on the message that humankind is producing CO₂ at rates that will push our planet beyond the point of no return in a few decades. This will initially endanger the arctic species and ultimately endanger civilization as a whole unless we take immediate measures to reduce our carbon footprint. His research clearly indicates that it is urgent we reduce the CO₂ levels, which currently range from 385 ppm to less than 350 ppm (<http://www.columbia.edu/~jeh1/>).
3. Paul Borawski, ASQ's executive director and chief strategic officer, gave an excellent and entertaining talk on social responsibility and the new ISO 26000 standard.

It was a highlight to see President Obama's plan, backed by hard cash, to expand 'energy diversity' and unleash the true American spirit of entrepreneurship, innovation, and excellence in this sector. I saw true hope, direction, and most important, businesses incorporating conservation and social responsibility in their business models. What affected

cont. on p. 3



Paul Borawski, ASQ executive director and chief strategic officer and Adil Dalal, co-chair, education and training, LED.

Bob Gilbertson, chair, WRES 2009, presents the awards on behalf of ASQ and ASQ LED to Adil Dalal.



Lean Enterprise Division at Renewable Energy Summit cont. from p. 2

me most was Dr. Hansen's immediate appeal to reduce our carbon footprint. I was jolted by the fact that Earth is in "intensive care." We all need to take this seriously and change our lifestyles. After all, 'style' will not matter without 'life' on the planet.

On a personal note, both papers, *Energy Conservation Kaizen (ECK): A new standard for Lean Enterprise* and *Got Lean? Tools for surviving the economic crisis*, were very well received by the audience. The focus of both talks was that lean tools can be used to transform businesses, and lean technology can be a great leader in energy conservation for all sources, including renewable energy. During the talk on surviving the economic crisis, I used an example of an eagle's ability to survive a painful death after 40 years by removing its bent beak, its crippled talons, and its heavy feathers so it can transform itself and live again for another 30 years. The message was to use the crisis to transform ourselves—if an eagle can do it, so can we. I did not realize the impact my talk and the analogy had on the audience until, after the talk, an MATC student, Tammy Markee-Mayas, came up to me and said, "You moved me to tears!"

I cannot end this without thanking the organizers of this summit, MATC, especially my friends Bob Gilbertson, Joe Jacobsen, and George Stone, all truly brilliant and humble human beings, without whose leadership this event would not have been a success. It was an honor to be a part of this event and share the stage with them.

Adil Dalal can be contacted at adil@pinnacleprocess.com.

Adil Dalal presents at the Renewable Energy Summit.



Adil Dalal and Kam Gupta, chair-elect, HD&L Division, in front of the ASQ LED booth at the Renewable Energy Summit.

Award presented to LED as a Renewable Energy Summit sponsor.



Institute of Industrial Engineers Operational Excellence Conference and Expo

The Institute of Industrial Engineers (IIE) is holding the IIE Operational Excellence Conference and Expo in St. Louis, MO, October 26–29, 2009. Post-conference workshops are October 28–29.

There is currently a call for papers and presenters. Deadline for submissions is Friday, May 1, 2009. You can submit your abstract via the conference Web site. The following educational tracks are available:

- Continuous Improvement
 - Design
 - Lean Services
 - Lean Tools
 - Measurements
 - Quality Engineering
 - Six Sigma
- Corporate Culture and Customer Value
 - Lean and Quality
 - Methodologies and Case Studies
 - Quality and Lean Systems Management

The conference also includes a couple of opportunities for facility tours, panel discussions, keynote speakers, a networking session, and much more. Visit the IIE Operational Excellence Conference and Expo Web site at <http://www.iienet2.org/operationalexcellence/>.

If you have any questions, please feel free to contact Chad Vincent at chad_vincent@baxter.com. He is working with the IIE Operational Excellence Conference Committee and can provide you additional information for submitting abstracts for presentations.

As part of the division's continuous pursuit of perfection, please let us know if any of you are attending and/or presenting at a conference, know of a conference or event, or know of anything new with lean. LED would like to get the word out to the rest of our members and continue to build and strengthen our global network of professionals. Send your conference announcements to Chad Vincent at chad_vincent@baxter.com.



Design for Lean Six Sigma: A Holistic Approach to Design and Innovation

Rajesh Jugulum and Philip Samuel

Here is a unique approach to Design for Lean Six Sigma (DFLSS). This book offers readers a structured road map with descriptions of the essential concepts, tools, and techniques for design in an engineering and a service context. It combines the important concepts of Design for Six Sigma, an approach that reduces operational variation and defects, with concepts of lean, an approach that helps eliminate waste and shortens cycle time. The result is Design for Lean Six Sigma (DFLSS), the integration of two exceptional forces in order to fuel any organization's drive for operational excellence, innovation, world-class quality, and growth.

Item: P1348

Price: \$75.00

Visit <http://www.asq.org/quality-press> for more information or to order.

Channel Flow

From *Manufacturing Review*, Volume 22, 2008.

by J.D. Cunningham and David Rucker

We often work on difficult applications of lean principles and find that sometimes (not very often), we must deviate from the standard applications. This week was the second time in the last decade that I had to deviate from the standard kanban application in order to eliminate the waste of over-processing (in the name of lean). Our client had an excellent implementation of a pull system through a number of batch processes, yet they were always frustrated and disappointed in the excess lead time that the process took to “cascade” the signal through the upstream processes to get the parts through these processes.

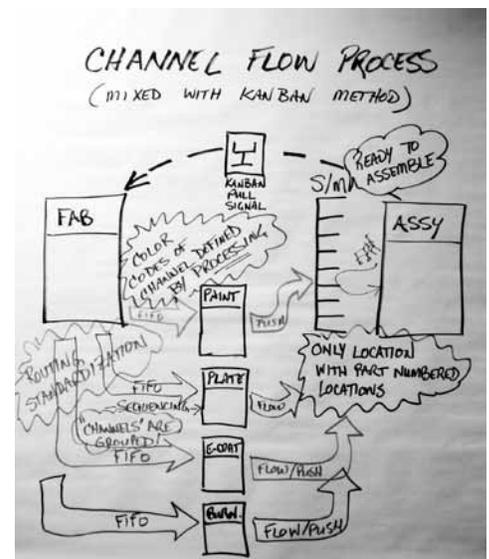
Now let me add that the “excess” time was always within 16 hours! In their current state, however, almost 320,000 parts sequenced through these batch operations every 24 hours. Imagine handling the kanban cards and managing the pull system through a system of sequenced pull that can fit 75 to 100 parts per bin and circulating 3,500 bins through these processes to make it flow in small batch sizes through multiple operations. Does this task sound more difficult than your own kanban system? I assure you it was; and, in addition to the hundreds of kanbans, discrete issue process parts numbering 14,000 plus had to be handled by work orders. Sometimes kanban can be more difficult than its output results warrant. I remember very well when one of my sensei's from Toyota had dinner with us in 2000. Mr. Niwa was an “architect” of the first kanban system at Toyota. He kept reminding us that kanban was a bandage for a deeper problem. His statement kept ringing in my ear that, “we should have just worked harder on one piece flow.”

With the mission of simplification our task; this is where the origins of “channel flow” begin. Many companies cannot just pick up and move all of their equipment. Channel flow is a modification of kanban systems that enables the fastest feedback to the upstream supplier of a process series that can vary into multiple paths. All of these processes are defined by multiple batch loops. The complexity of such a system, and the necessity to ensure parts follow only their designated paths, are major problems for quality flow and ensuring all parts get only their specified steps without fail (and never get over-processed either). The only way to assure such process control would seem to be one of two alternatives . . . neither of which is simple.

One alternative is the old-fashioned “traveler” card as those of you with a little gray hair might remember. The parts were routed by material handlers or expeditors through each process and when the process-operator had finished with the batch, they signed-off on the process card router card. This required lots of transactions and waypoints for inventory to be tracked and “nurtured” through the correct processes by material handlers. Undoing these traditional steps is why we all learned lean.

The other “more lean” solution is to create multiple kanban loops with part number specific locations and kanbans that would allow parts to progress step-by-step through the appropriate processes from pull supermarket to the next step. However, management of the system, and the multiple loops of kanbans, created untenable lead times and complexity for this company. Also the amount of space consumed by these supermarkets was outrageous in their high volume multiple part number complexity.

Few lean thinkers know of the seldom-used solution of channel flow, which was also known as structured flow from the late 1970s and early '80s. This tool was used by many companies that were just



cont. on p. 5

Channel Flow cont. from p. 4

learning this thing called just-in-time. This was in the time before a truly lean enterprise was bold enough to completely convert their batch processing into one-piece-flow cells. It was expensive (and career limiting or risky) to pick up all of your machines and move them into flow paths as defined by the tool of routing standardization.

I had a unique understanding of channel flow years ago as we converted from batch and queue machining processes that were centralized by processes into rough turning and finish turning areas, through heat treat, grind, hone, and finally to assemble in a high volume machining environment. So how does one execute the flow paths of routing standardization without picking up each machine and placing them into defined flow cells?

There is a technique that was simple, logical, and error-proofed to ensure proper process-step control for each part by using colored flow paths. "Channel flow" did not require multiple kanban loops, keeping the build signals to upstream processes simple and sure. (Always remember that the first choice for implementing routing standardization is to execute process flow by moving machines.) Channel flow will always be a lesser alternative.

Step one is to complete your routing standardization by properly taking the top 80 percent of your volume by part number and segregating the part number by common routing and detailing these processes. Never before have I had to use more than five flow paths to balance the work through the "virtual cells" or flow path "channels."

Once this first step is complete, assign a color code to each flow path...I recommend staying away from the color red due to its negative connotations. Keep it always reserved for scrap or urgency, whichever is the local practice. Now that you have color-specific flow paths, you can paint flow lanes on the floor or assign machines by painting the flow path color on each machine. I have seen everything, including stripes on the floor, entire machines painted, and colored flags at each process step. Now all of those parts assigned to that flow channel need only to be designated by color cards or colored bins to ensure their step-by-step advance from process to process. This provides the mistake-proofing simplicity and common sense first-in, first-out (FIFO) necessary to ensure parts never go idle or dwell in obscurity of the "lost part" dust collection stages.

Each operator after processing his/her FIFO lane only must know to "flow" or "push" the parts into the subsequent process's FIFO lane. This is *not* a push system, because no parts will get requested unless there is a FG's pull signal. All parts must flow in a FIFO lane to ensure timely delivery. The rules of channel flow systems are short and simple for everyone in the organization to understand and follow. Good luck, but remember one piece flow is always better!

- Rule 1 The first process step is only called for when a pull signal or kanban signal is sent back from the FG's pull or last process in the channel flow.
- Rule 2 Color defines the flow path and maintains our quality assurance that no step is missed in the standard routing of that part family.
- Rule 3 No part number specificity is required in any of the batch flow processes. In other words, there is little to zero set up required for heat-treat, paint, or plating type operations.
- Rule 4 If a process is an actual constraint in the flow channel, then a sequencing system must be created to allocate that resource equally across multiple flow channels. This is much like weighting consumption (mixed model leveling) by percentage of volume of part family. Note that some batch processes can process some part families faster than others. Hanging patterns for paint, density, volume, or batch size considerations will enter into the allocation percentages.
- Rule 5 First-in, first-out! Expediting is like a drug. Be careful once you begin, you may not be able to control yourself.

Caveats and notable risks

1. Batch operations become "blind" to the true customer demand. They must trust the pull system of FIFO.
2. If the upstream process over-produces and creates a "glut" of one channel's parts, other parts will be trapped in a waiting pattern and could become late. Overproduction without the pull signal must be strictly forbidden.



Office Kaizen: Transforming Office Operations Into a Strategic Competitive Advantage

William Lareau

Many business functions have been significantly improved through the use of a variety of quality techniques, but for the most part office and administrative functions have not kept pace. Most companies find it difficult to reduce costs in the office without noticeable sacrifices in performance. Some progressive companies are seeing improvements in their office environments through the use of office kaizen, which emphasizes making continuous improvements over the long haul. *Office Kaizen: Transforming Office Operations Into a Strategic Competitive Advantage* presents a unified, consistent approach that enables businesses to establish a strategic competitive advantage by significantly improving the efficiency, quality, and productivity of their office and administrative processes.

Item: H1168

Member Price: \$30.00

Visit <http://www.asq.org/quality-press> for more information or to order.

Getting Started With Lean Six Sigma in a Small to Midsize Enterprise—Virtual Course

You can use a Lean Six Sigma continuous improvement program to generate successful results—in any size company, business unit, or division. You may realize the importance of using such a disciplined and structured improvement methodology like Lean Six Sigma, but may not know quite how to get started.

This eight-hour course prepares leaders like you to implement a Lean Six Sigma improvement plan. You'll start by getting an understanding of how Lean Six Sigma positively impacts organizations, then you'll go through a successful process model for getting started. We'll describe what you need to consider to develop an effective deployment plan for your department, business unit, or your whole company. Finally, we'll show you how to gain commitment, select a project, build success criteria, manage the project, allocate resources, and plan for success.

August 19, 2009
8:00 a.m.–4:00 p.m. (Central)

Member Price: \$575

Visit <http://www.asq.org/store/training-certification> for more information or to register.

Channel Flow cont. from p. 5

3. Process flow is defined by color *not* part number. The FIFO system restricts the practicality to expedite. Lots of supermarket space can be reclaimed since no empty spaces need be reserved. Supermarket methodology creates “white space” not in use because every part number has a slot. Much greater density of part flow can be achieved in a FIFO flow rack preceding each batch process; however, parts must get located in the final ready-to-assemble (or FG's) supermarket for pull signals to work. Make the parts constantly move first-in, first-out and let them rest only when they are in the final state of readiness for assembly or sale.
4. Constraint operations must have a mixed model sequencing plan. You must not allocate too much process time to any one channel. Apportion processing by volume percentage or in accordance with batch size and volume percentage proportions.

Lean Sessions at 2009 World Conference on Quality and Improvement

Below are some sessions and events that may be of interest to our lean readers. These sessions are a part of the concurrently-held World Conference on Quality and Improvement, Quality Institute for Healthcare, Institute for Software Excellence, and Quality in Sustainability Conference. Please feel free to visit the World Conference Web site (<http://wcqi.asq.org>) for more information about the individual sessions and/or events and for more information about the other concurrently-held conferences.

ASQ World Conference on Quality and Improvement

- M07 Successful Integration of Six Sigma and Lean
- T01 Strategic Planning and Execution Using Lean Tools (*Multi-Session 1 of 3 - See T11 and T21*)
- T04 The Next Quality Revolution
- T05 A Quality Culture: Don't Wait Until It's Too Late
- T07 Improving Knowledge Work: Lessons Learned
- T10 Left of Lean: Designing for Manufacturing and Quality
- T11 Strategic Planning and Execution Using Lean Tools (*Multi-Session 2 of 3 - See T01 and T21*)
- T18 The Process Diagram: A Key Tool for Process Thinking
- T21 Strategic Planning and Execution Using Lean Tools (*Multi-Session 3 of 3 - See T01 and T11*)
- T36 Performance Validation Through Audits
- T39 Manage Knowledge Workers for Lean Process Quality
- W02 Lean Six Sigma in Government
- W04 Culture Change Through Lean Six Sigma Education
- W05 Customer Data Mining With Excel Pivot Tables
- W14 Linking Six Sigma and Lean

World Conference “After 5” Sessions

- AF01 Lean For Your Kitchen
- AF02 Making Sushi: An Improved Process Using PDCA and Lean
- AF05 Everything I Learned About Lean, I Learned in Kindergarten

Student Paper Competition

- S01 The Multi-Disciplinary LEAN Improvement of Total Clinical Laboratory Testing in an Outpatient Setting
- S03 Six Sigma in UK SMEs — A Longitudinal Study

International Team Excellence Award Process Presentations

- Healthways
- The Boeing Company
- Barnes-Jewish Hospital
- Littelfuse Phils., Inc.
- U.S. Naval Ship Repair Facility and Japan Regional Maintenance Center

Quality Institute for Healthcare (QIHC)

- HCM2 Doing More With Less: Applying Lean Principles in the Emergency Department (*Short Session*)
- HCT2 Lean Methodology and Applications (*Short Session*)
- HCW2 Lean Six Sigma: A Simulated Exercise (*Workshop*)
- HCW4 Mistake-Proofing for Clinical Healthcare (*Workshop*)
- HCW6 Improving Patient Flow: Value Stream Management (*Workshop*)
- HCW8 Blending Lean and Six Sigma: It's Not a Scare, Just a Dare! (*Workshop*)

Institute for Software Excellence (ISE)

- ISE05 Reliability-Centered Lean Software Testing
- ISE06 How to Lean Processes and Procedures Using Best Practices

Lean in Life (LiL)

by Kam Gupta

Make This a 'Define Lean for You' quarter

Welcome to LiL. Yes, it is true. Our contributors sometimes feel hesitant in submitting anything about personal lean, perhaps for fear of appearing less than adequate in application or understanding of the concepts of lean. The concept of lean is nevertheless embedded in elemental quality, which is integral to any outcome or output. Quality has many aspects—quality in products, service, relationships, communication, accounting, research, driving... quality in anything we can think of. Where there is quality, there is absolute possibility of lean. If there is a high quality content in any of our interactions, experiences, or thoughts, we feel a greater degree of satisfaction and success. Actually, our satisfaction is directly related to the quality of something. Lean helps us become more efficient in delivering and experiencing that quality feeling.

Quality is as unique as each of us. More often than not, we define or understand quality when we are on the receiving end, and we tend to assume quality when we are on the delivering end. Seldom do we venture out to find what quality means to the other party in a relationship or in many other aspects of life and work. VoC is therefore a very significant element of the value stream in lean.

Last week I was representing the Lean Enterprise Division at the Wisconsin Renewable Energy Conference in Milwaukee and saw quality and lean from quite a different perspective. Words like 'responsibility' and 'responsive' had a very concise meaning and felt empowering and liberating. Those words, combined with the support of local leadership, have brought more power to defining quality in the renewable energy (RE) field. Companies are racing forward in areas of bio-fuels and solar, wind, and thermal energy. I felt like the great American spirit of creativity and free enterprise was coming alive. Adil Dalal, our representative at the conference, did an excellent job by presenting two papers that described the relationship between lean and renewable energy.

The times are certainly challenging. These are also the times to test our belief in 'quality' and 'lean' in everything we do. It is the ideal time in defining lean at a personal level (LiL). So let us take time this quarter, until the next issue of the newsletter, to clearly define what lean means to each of us at work and in our personal lives—and how the two align. It could be a really lean experience in learning, and worth the effort. Feel free to send your thoughts and comments to me at citkam@gmail.com for summarization.

Side note: Local schools in Wisconsin, like MATC, have begun to offer a popular renewable energy certification (<http://matcmadison.edu/matc/offerings/programs/renewable-energy-certificate/default.shtm>), which is being well received by many adults as a second career path in a growing and promising field.

Kam Gupta is a Senior member of ASQ, LED volunteer, and chair-elect for the ASQ HD&L Division. He is an executive coach/life coach and works in the area of leadership development for process effectiveness using value-based empowerment and energy-driven leadership. Gupta is a Six Sigma Master Black Belt and ASQ CSSBB, CQE, and CQA. He provides lean implementation and training support in manufacturing and service environments. He also provides coaching to Six Sigma and lean champions and leaders in organizational settings. Gupta is president of Continuous Improvement Technology, Inc., which is located in the Chicago area.



ASQ World Conference on Quality and Improvement



May 18-20, 2009

Minneapolis, MN

Minneapolis Convention Center

The use of quality is no longer limited to the efforts of traditional quality professionals. More and more quality tools and methodologies are being driven throughout entire organizations. Join ASQ for the 63rd World Conference on Quality and Improvement for information on quality basics, customer service, driving quality throughout the organization, improved performance, and 21st century needs, competencies, and issues. Come to learn, network, and lead your organization to excellence.

Visit wcqi.asq.org
for more information.





600 N. Plankinton Ave.
Milwaukee, WI 53201-3005
t: 414-272-8575
800-248-1946
f: 414-272-1734
www.asq.org

NON-PROFIT
U.S. Postage
PAID
Milwaukee, WI
Permit No. 5419

Lean Enterprise Division | April 2009 | Volume 7, Issue 3



Note From the Editor

Happy spring, LED members!

Conference time is upon us once again. I had the pleasure of attending the Lean Six Sigma Conference early in March. It was great to be around such a wonderful group of people. For those

of you who were there, I hope you enjoyed it as much as I did and if you were not able to make it, I hope you can make it next year. On that note, the ASQ World Conference on Quality and Improvement is just around the corner. As always, the conference has many exciting things going on. Speaking of things that are going on, this issue will be the last printed issue of *Lean Enterprise Division News*. In an effort to be environmentally responsible, all future issues will be in electronic format. Please keep an eye on your e-mail inbox so that you don't miss future issues. This newsletter is yours; if you have any suggestions, please send me an e-mail. Remember, you don't have to be a seasoned writer to be a part of the newsletter.

Best regards,

Wendy Gomez
wendy.gomez@danmer.com

Last Paper Issue of *Lean Enterprise News*



Paper issues will continue to be sent only upon request—send a message to lmilanowski@asq.org with “Paper Lean News” in the subject line if you would like to continue to receive a paper copy.