



Society of Manufacturing Engineers Wabash Valley Chapter 275

April, 2007

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Upcoming Dates

Apr. 12 Wabash meeting

May. 10 Wabash meeting

May 22-24 EASTEC
W. Springfield, MA

Jun. 30 Wabash golf outing

Sep. 13 Wabash meeting
Sep. 14-15 SME Leadership
Bootcamp, Columbus, Ohio

Oct. 11 Wabash meeting

Nov. 8 Wabash meeting

Dec. TBD Wabash meeting

Note the SME Wabash Valley, Chapter 275 web is now at:

<http://chapters.sme.org/c275/>

SME Wabash Valley 275 Meeting Schedule

April 12, 2007, Thursday

Holiday Inn, 3300 US Highway 41 S., Terre Haute, IN 47802,
Chestnut West meeting room

6:00 PM Social

6:30 PM Dinner, \$15 meal cost, \$6 students

7:00 PM Program. Up to three \$500 Student Scholastic Awards will be given on the basis of scholastic promise and need, for students attending Indiana State University in the Fall, 2007 semester.

A talk on "Internet Security, Identity Theft, and Passwords" will be given by Wes Richardson.

Joint SME, ASM and ASQ meeting. Everyone welcome. Reservations required by Monday, April 9, contact Roy Boissy (812) 237-8329 or

arrangements@asqwabashvalley.org

May 10, 2007, Thursday

Challenge X update, Rose-Hulman Institute of Technology
Times and location will be given later.

Reservations required by Monday, May 7, contact Roy Boissy (812) 237-8329 or

arrangements@asqwabashvalley.org

Joint SME, ASM and ASQ meeting. Everyone welcome.

May 22 - 24, 2007

SME EASTEC, W. Springfield, MA. More information is on the SME web site.

June 30, 2007, Saturday

Golf outing and picnic at the Country Club of Terre Haute, 57 Allendale Street, Terre Haute, IN 47802

<http://thegolfcourses.net/golfcourses/IN/5226.htm>

There is a maximum of 20 people playing golf. Availability based on order in which reservations are received.

NOTE: The dress code is collared shirts. T-shirts and cut-offs are not allowed. This is a very nice private golf course.

8:00 AM Check-in. 8:30 AM Tee off with multiple groups starting at the same time. Play will be best ball in the group, with group members assigned by relative score of who plays.

1:00 to 1:30 PM Approximately start of picnic. People do not need to play golf in order to come to the picnic. Spouses invited.

Cost of golf will be \$30 each, including shared cart. Cost of picnic will be \$10 each. Costs are being supported by the ASQ, SME, and ASM groups, and Quality Council of Indiana. Reservations required by June 22, and indicate golf and picnic or picnic only.

Contact Wes or Bill at (812) 533-4215 or asqwabash@yahoo.com. Joint SME, ASM and ASQ meeting. Everyone welcome.

September 14 and 15, Friday and Saturday

SME Leadership Bootcamp, Columbus, Ohio

SME Wabash Valley 275 Membership

If you know of a SME member that is in the Terre Haute area, but is not a Wabash Valley member, please ask them to consider joining Chapter 275.

SME Members Page

SME has started a new SME Members Page. From the SME home page, click on "Check out our new SME members page" or http://www.sme.org/cgi-bin/membhtml.pl?html/serv_center_memb.htm&&SME&

Currently, there is a message from SME President, F. Brian Holmes, as well as, other news and information.

Certification Corner

SME currently offers the following Certifications:

Certified Manufacturing Technologist-CMfgT

Earning the CMfgT demonstrates your competence in the fundamentals of manufacturing. A free CMfgT quiz is available.

Certified Manufacturing Engineer - CMfgE

The CMfgE recognizes your comprehensive knowledge of manufacturing processes and practices. A free CMfgE quiz is available.

Certified Engineering Manager - CEM

CEM documents your skills and understanding of business processes, external enterprise influences, customer focus, teamwork, and responsibilities. Cosponsored by SME and IIE.

Certified Enterprise Integrator - CEI

The CEI shows you are proficient in leading cross-functional initiatives throughout your company's extended supply chain.

Six Sigma Certification

The Six Sigma programs were developed and are delivered by award winning ASU IE faculty members; Dr. Doug Montgomery, Dr. George Runger, Dr. Dan Shunk, and Dr. John Fowler, as well as experts from industry.

Lean Certification

A multi-level program recognizing tactical, integrative, and strategic application of standard Lean principles.

Information on all SME Certifications may be found at <http://www.sme.org> then click on Professional Development drop down menu Certification.

Notes from last month' meeting

20 people attended the March joint meeting of ASM Wabash Valley, ASQ Wabash Valley, and SME Wabash Valley. The meeting started with a tour of Novelis Corporation. Novelis rolls aluminum coils into thinner sheet, cuts it to customer widths, and then coils it. They have ISO 14001, ISO 9001 and OHSAS 18001 certifications.

Allen Cheesman, Dan Pulliam, and Larry Warren were tour hosts. All tour visitors first receive a safety orientation and must wear eye and ear protection during the tour. The plant was very clean and well lit. Novelis has an extensive safety and environmental system which includes recycling scrap aluminum. It was a very interesting tour. Dinner was at Gerhardt's Bierstube Restaurant.

Photos from the meeting are on page 5.

Question of the Month

This month we offer an easy question first and then a hard question.

Q1. What letters do not appear in the names of the States in the United States?

Q2. The following is a logic puzzle, and does not require guessing. The question is:

Which professional is in Quality?

1. In a street there are five houses in a row from left to right, painted five different colors.
2. In each house lives a person of different nationality.
3. These five homeowners each drink a different kind of beverage, have a different profession and eat a different fruit.
4. The British lives in a Red house.
5. The Swedish is a professional in Manufacturing.
6. The Danish drinks Tea.
7. The Green house is next to, and on the left of the White house.
8. The owner of the Green house drinks Coffee.
9. The person who eats Apples is a professional in Metallurgy.
10. The owner of the Yellow house eats Oranges.

11. The man living in the center house drinks Milk.
12. The Norwegian lives in the first house.
13. The man who eats Peaches lives next to the one who is a professional in Engineering.
14. The man who is a professional in Chemistry lives next to the man who eats Oranges.
15. The man who eats Bananas drinks Beer.
16. The German eats Pears.
17. The Norwegian lives next to the Blue house.
18. The man who eats Peaches has a neighbor who drinks Water.

If you think you know the answer, send an e-mail to asqwabash@yahoo.com The first person with the correct answer will have their name listed in next month's newsletter. The answer will be given next month.

Answer for March's Question

5	4	9	7	6	3	2	8	1
6	7	2	1	5	8	9	4	3
3	8	1	2	4	9	5	6	7
1	6	8	5	3	2	4	7	9
7	5	3	8	9	4	6	1	2
9	2	4	6	1	7	3	5	8
4	1	7	9	2	5	8	3	6
2	3	6	4	8	1	7	9	5
8	9	5	3	7	6	1	2	4

Original numbers shown in **bold**.

SME 275 Wabash Valley Officers for 2007

Michael Hayden, Chair
Hank Leonhardt, Chair Elect
Bill Wortman, Secretary
Wes Richardson, Treasurer

SME S089 Indiana State University Student Chapter Officers for 2007

Rakesh Yarlagadda, Chair
Ryan Kunkler, Chair Elect
Sajid Syed, Secretary
Kartheek Theeda, Treasurer
Surendranath Antharam,
Program Committee Chair
James Smallwood, Faculty Advisor

SME headquarters contacts for 2007

Natalie Lowell, Member Relations Manager
Michael F. Molnar, Member Council
Representative
F. Brian Holmes, SME President

You may send an e-mail to any of the above individuals by sending to smewabash@yahoo.com and including the name of the person you wish to contact. Place SME Wabash Valley in the Subject line. Your e-mail will be forwarded to the indicated person.

Internet Web Sites

SME Wabash Valley, Chapter 275
<http://chapters.sme.org/c275/>

SME Indiana State University, Chapter S089
<http://chapters.sme.org/s089/>

SME International
<http://www.sme.org>

ASQ Wabash Valley, Section 0919
<http://www.asqwabashvalley.org/>

ASQ International
<http://www.asq.org>

ASM Wabash Valley
<http://chapters.sme.org/c275/asm.htm>

ASM International
<http://www.asminternatinal.org>

The SME Wabash Valley Newsletter newsletter is a publication of SME Wabash Valley, Chapter 275, located in Terre Haute, Indiana.

Articles, comments or other feedback may be sent to:

Wesley Richardson, Newsletter Editor
10037 E. Flesher Avenue
Terre Haute, IN 47803-9638
smewabash@yahoo.com

Deadline for submitting information for the April newsletter is April 26, 2007.



Novelis Corporation, Terre Haute, Indiana



Dinner at Gerhard's Restaurant after the tour

ASQ Quality Glossary

<http://www.asq.org/glossary>

Quality: A subjective term for which each person has his or her own definition. In technical usage, quality can have two meanings: 1. the characteristics of a product or service that bear on its ability to satisfy stated or implied needs. 2. a product or service free of deficiencies.

Quality assurance/quality control (QA/QC):

Two terms that have many interpretations because of the multiple definitions for the words "assurance" and "control." For example, "assurance" can mean the act of giving confidence, the state of being certain or the act of making certain; "control" can mean an evaluation to indicate needed corrective responses, the act of guiding or the state of a process in which the variability is attributable to a constant system of chance causes. (For a detailed discussion on the multiple definitions, see *ANSI/ISO/ASQ A3534-2, Statistics--Vocabulary and Symbols--Statistical Quality Control*.) One definition of quality assurance is: all the planned and systematic activities implemented within the quality system that can be demonstrated to provide confidence a product or service will fulfill requirements for quality. One definition for quality control is: the operational techniques and activities used to fulfill requirements for quality. Often, however, "quality assurance" and "quality control" are used interchangeably, referring to the actions performed to ensure the quality of a product, service or process.

Quality audit: A systematic, independent examination and review to determine whether quality activities and related results comply with planned arrangements and whether these arrangements are implemented effectively and are suitable to achieve the objectives.

Quality circles: Quality improvement or self-improvement study groups composed of a small number of employees (10 or fewer) and their supervisor. Quality circles originated in Japan, where they are called quality control circles.

Quality control: See "quality assurance/quality control."

Quality costs: See "cost of poor quality."

Quality engineering: The analysis of a manufacturing system at all stages to

maximize the quality of the process itself and the products it produces.

Quality Excellence for Suppliers of Telecommunications (QuEST) Forum: A partnership of telecommunications suppliers and service providers with more than 130 members. The QuEst Forum developed TL 9000 (see listing).

Quality function deployment (QFD): A structured method in which customer requirements are translated into appropriate technical requirements for each stage of product development and production. The QFD process is often referred to as listening to the voice of the customer.

Quality loss function: A parabolic approximation of the quality loss that occurs when a quality characteristic deviates from its target value. The quality loss function is expressed in monetary units: the cost of deviating from the target increases quadratically the further the quality characteristic moves from the target. The formula used to compute the quality loss function depends on the type of quality characteristic being used. The quality loss function was first introduced in this form by Genichi Taguchi.

Quality management (QM): The application of a quality management system in managing a process to achieve maximum customer satisfaction at the lowest overall cost to the organization while continuing to improve the process.

Quality management system (QMS): A formalized system that documents the structure, responsibilities and procedures required to achieve effective quality management.

Quality plan: A document or set of documents that describe the standards, quality practices, resources and processes pertinent to a specific product, service or project.

Quality policy: An organization's general statement of its beliefs about quality, how quality will come about and what is expected to result.

Quality score chart: A control chart for evaluating the stability of a process. The quality score is the weighted sum of the count of events of various classifications in which each classification is assigned a weight.

Quality tool: An instrument or technique to

support and improve the activities of process quality management and improvement.

Quality trilogy: A three-pronged approach to managing for quality. The three legs are quality planning (developing the products and processes required to meet customer needs), quality control (meeting product and process goals) and quality improvement (achieving unprecedented levels of performance).

Quincunx: A tool that creates frequency distributions. Beads tumble over numerous horizontal rows of pins, which force the beads to the right or left. After a random journey, the beads are dropped into vertical slots. After many beads are dropped, a frequency distribution results. In the classroom, quincunxes are often used to simulate a manufacturing process. The quincunx was invented by English scientist Francis Galton in the 1890s.

R

RAM: Reliability/availability/maintainability (see individual entries).

Random cause: A cause of variation due to chance and not assignable to any factor.

Random sampling: A commonly used sampling technique in which sample units are selected so that all combinations of n units under consideration have an equal chance of being selected as the sample.

Range (statistical): The measure of dispersion in a data set (the difference between the highest and lowest values).

Range chart (R chart): A control chart in which the subgroup range, R , is used to evaluate the stability of the variability within a process.

Red bead experiment: An experiment developed by W. Edwards Deming to illustrate it is impossible to put employees in rank order of performance for the coming year based on their performance during the past year because performance differences must be attributed to the system, not to employees. Four thousand red and white beads in a jar, 20% red, and six people are needed for the experiment. The participants' goal is to produce white beads because the customer will not accept red beads. One person begins by stirring the beads and then, blindfolded, selects a sample of 50 beads. That person hands the jar to the

next person, who repeats the process and so on. When everyone has his or her sample, the number of red beads for each is counted. The limits of variation between employees that can be attributed to the system are calculated. Everyone will fall within the calculated limits of variation that could arise from the system. The calculations will show that there is no evidence one person will be a better performer than another in the future. The experiment shows that it would be a waste of management's time to try to find out why, say, John produced four red beads and Jane produced 15; instead, management should improve the system, making it possible for everyone to produce more white beads.

Reengineering: A breakthrough approach involving the restructuring of an entire organization and its processes.

Registrar Accreditation Board (RAB): A board that evaluates the competency and reliability of registrars (organizations that assess and register companies to the appropriate ISO 9000 series standards and to the ISO 14000 environmental management standard). RAB provides ISO course provider accreditation. Formed in 1989, RAB is governed by a board of directors from industry, academia and quality management consulting firms and by a joint oversight board for those programs operated with the American National Standards Institute (see listing).

Registration: The act of including an organization, product, service or process in a compilation of those having the same or similar attributes.

Registration to standards: A process in which an accredited, independent third-party organization conducts an on-site audit of a company's operations against the requirements of the standard to which the company wants to be registered. Upon successful completion of the audit, the company receives a certificate indicating that it has met the standard requirements.

Regression analysis: A statistical technique for determining the best mathematical expression describing the functional relationship between one response and one or more independent variables.

Rejection number: The smallest number of defectives (or defects) in the sample or

samples under consideration that will require the rejection of the lot.

Reliability: The probability of a product's performing its intended function under stated conditions without failure for a given period of time.

Requirements: The ability of an item to perform a required function under stated conditions for a stated period of time.

Results: The effects that relate to what is obtained by an organization at the conclusion of a time period.

Right the first time: A term used to convey the concept that it is beneficial and more cost effective to take the necessary steps up front to ensure a product or service meets its requirements than to provide a product or service that will need rework or not meet customer needs. In other words, an organization should engage in defect prevention rather than defect detection.

Robustness: The condition of a product or process design that remains relatively stable, with a minimum of variation, even though factors that influence operations or usage, such as environment and wear, are constantly changing.

Romig, Harry G. (deceased): An Honorary Member and founder of ASQ who was most widely known for his contributions in sampling. At AT&T Bell Laboratories, Romig and Harold F. Dodge developed the Dodge-Romig sampling tables, operating characteristics for sampling plans and other fundamentals. Romig alone developed the first sampling plans using variables data and the concept of average outgoing quality limit. Later in his life, Romig was a consultant and taught quality related courses at several universities.

Root cause: A factor that caused a nonconformance and should be permanently eliminated through process improvement.

Run chart: A chart showing a line connecting numerous data points collected from a process running over a period of time.

S

Sample: In acceptance sampling, one or more units of product (or a quantity of material) drawn from a lot for purposes of inspection to reach a decision regarding acceptance of the lot.

Sample size: [n] The number of units in a

sample.

Sample standard deviation chart (S chart): A control chart in which the subgroup standard deviation, s , is used to evaluate the stability of the variability within a process.

Sampling at random: As commonly used in acceptance sampling theory, the process of selecting sample units so all units under consideration have the same probability of being selected. Note: Actually, equal probabilities are not necessary for random sampling--what is necessary is that the probability of selection be ascertainable. However, the stated properties of published sampling tables are based on the assumption of random sampling with equal probabilities. An acceptable method of random selection with equal probabilities is the use of a table of random numbers in a standard manner.

Sampling, double: Sampling inspection in which the inspection of the first sample leads to a decision to accept a lot, reject it or take a second sample; the inspection of a second sample, when required, then leads to a decision to accept or to reject the lot.

Sampling, multiple: Sampling inspection in which, after each sample is inspected, the decision is made to accept a lot, reject it or to take another sample; but there is a prescribed maximum number of samples, after which a decision to accept or reject the lot must be reached. Note: Multiple sampling as defined here has sometimes been called "sequential n sampling" or "truncated sequential e sampling." The term "multiple sampling" is recommended by this standard.

Sampling, single: Sampling inspection in which the decision to accept or to reject a lot is based on the inspection of a single sample.

Sampling, unit: Sequential sampling inspection in which, after each unit is inspected, the decision is made to accept a lot, reject it or to inspect another unit.

Satisfier: A term used to describe the quality level received by a customer when a product or service meets expectations.