



WELCOME

The ASQ Reliability Division is the largest group in the world promoting reliability training and education.

This newsletter covers professional development opportunities, plus division activities, information and news.

Chair's Note

In this edition



David Auda

Chair, Reliability Division of ASQ
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chair@asqrd.org

Dear Friends, This Newsletter marks my last newsletter as the Chair of the ASQ Reliability Division. I have enjoyed my "stint" as chair and hope I have influenced both the Reliability Division members and the Reliability Division customers in a positive way. One last reminder on the need for volunteers, ASQ-RD is having a REAL impact with the Webinar program, our publications and our support of Reliability related conferences and symposia. Join us and help us make a bigger impact! Send an email to me at chair@asqrd.org along with your interests and a resume. Thanks again for your support over the last 2 years!

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Incoming Chair's Note

Announcements



Trevor Craney

In-coming Chair, Reliability Division of ASQ
chair@asqrd.org

I look forward to an exciting year:

- Continuing our successful webinar series
- Sponsoring Reliability conferences
- Supporting member professionalism by creating opportunities for furthering their reliability knowledge via short courses where they work, at sponsored conferences, at local venues throughout the US/Canada (and outside North America in 2015),
- Responding to member needs for a repository of Reliability knowledge.
- Responding to member ideas with regard to CRE, GB, BB and Master Black Belt criteria, as well as other ideas for making Reliability a stronger profession.

Have a Very Merry Christmas, Happy Holidays and our wish is for a Happy, Prosperous New Year.

I look forward to seeing you all at RAMS in Colorado Springs in January!

The Reliability Calendar

Find a wide array of seminars, conferences, classes, webinars and more for your professional development from as many sources around the world as we can find. Visit www.reliabilitycalendar.com

ASQ RD LinkedIn Group

There is an ASQ RD Group within LinkedIn. Another forum to network, stay in touch and engage in professional discussions with your peers. Click here to link in.

ASQ RD webinars

Recorded webinars on topics relevant to reliability engineers delivered by subject matter experts. Visit <http://asq.org/reliability/quality-information/webinars-reliability.html>

Division Budget Update

ACCOUNT DESCRIPTION	2013 Budget	2013 Actual 8/31/2013	2014 Budget
5100 Printing & Production	\$800	\$351	\$800
5280 Promotional Giveaways	\$100	\$476	\$100
5400 Postage & Shipping	\$1,000	\$381	\$1,000
5500 Contract & Professional	\$800	\$424	\$800
5511 Bank Fees	\$0	\$6	\$10
5573 Advertising	\$200	\$250	\$300
5675 Equipment Rentals	\$300	\$552	\$300
5800 Meetings & Banquets	\$6,000	\$6,196	\$6,000
5900 Travel	\$30,000	\$16,254	\$30,000
6000 Supplies	\$100	\$197	\$100
6100 Telephone	\$1,000	\$6,063	\$1,000
6200 Partner Payment	\$3,500	\$3,500	\$3,500
6310 Awards & Gifts	\$1,700	\$106	\$1,700
6328 Donations/Scholarships	\$0	\$0	\$0
6390 Other	\$2,500	\$0	\$2,500
TOTAL EXPENSES	\$48,000	\$34,755	\$48,110
NET INCOME/(LOSS)	(\$7,700)	\$8,994	(\$1,400)

ASQ Reliability Division Financial Summary for October 12, 2013

The Division is in very good shape financially as of October 12. The Annual Reliability and Maintainability Symposium (RAMS®) in January returned over \$10,000 to us and the Design for Experiments Workshop conducted by our Chair Elect, Trevor Craney, returned \$1700 to us. We are using these earnings to fund our webinars and the development of a new ASQRD.ORG website (website development expenses are reflected in account 6100). Overall year to date our income has exceeded our expenses by \$8,994.

Update provided by RD Treasurer

Alfred Stevens.

ACCOUNT DESCRIPTION	2013 Budget	2013 Actual 8/31/2013	2014 Budget
4000 Dues	\$25,000	\$17,523	\$25,000
4100 Retail_Sales	\$500	\$510	\$500
4200 Advertising	\$4,000	\$3,773	\$4,000
4300 Registrations	\$10,000	\$16,791	\$12,000
4870 Interest	\$200	\$230	\$200
4872 Dividends	\$600	\$4,923	\$5,000
4990 Miscellaneous			
TOTAL REVENUE	\$40,300	\$43,750	\$46,700



Latest from OPS ALA Carte:

Ops is Teaching the **CRE Prep Class**. We have been teaching this course for 15 years. It is being offered on-line via web conference. Class starts January 14, 2014 (Tuesday) on west coast (6-10pm PST) and January 15 (Wednesday) on east coast (6-10pm EST), both via webinar. See http://www.opsalacarte.com/Pages/education/edu_9cre.htm for details and future offerings.

Also, check out

RELIAPEDIA website – Most complete library of technical articles and videos on reliability, completely searchable, comes with help desk for quick answers.



Professional Reliability Consulting, Testing, and Training Services
We provide *customized solutions* to optimize your product reliability.

- Assessments
- Goals
- Benchmarking
- Reliability Program Plans
- MTBF Pred]
- FMECA
- EOL Assessment
- Warranty Analysis
- HALT/HASS
- ALTs
- Rel Demo Tests
- Software Reliability
- RCA
- DOE
- Training/Teaching
- RoHS/WEEE Transition



We own  one of the oldest & most experienced reliability labs

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International Applied Reliability Symposium

Join the conversation!

June 3 - 5, 2014 in Indianapolis, Indiana

Reliability engineering has never been more important than in today's economic environment. Whether you are just beginning your reliability journey or you are a weathered veteran, the International Applied Reliability Symposium (ARS) has something for you. This reliability and maintainability conference provides a forum for expert presenters from industry and government to come together with reliability practitioners from all over the world to discuss the application of reliability principles to meet real-world challenges.



To register or for more information:

Website: <http://www.ARSymposium.org>

E-mail: Info@ARSymposium.org

Phone: 1.888.886.0410 or +1.520.886.0410

The Symposium will take place at:

Indianapolis Marriott Downtown

350 W. Maryland St., Indianapolis, IN

Website: <http://www.indymarriott.com>

The Symposium's presentations and tutorials cover a range of subjects, such as:

Reliability programs • Design for Reliability (DFR) • Design for Six Sigma (DFSS) • Reliability specifications and metrics • Data collection, management and analysis • Experiment design and analysis • Accelerated testing • Failure Modes and Effects Analysis (FMEA) • Reliability growth analysis • Software reliability • System analysis • Asset management and maintenance planning • Risk and safety analysis • Warranty cost reduction



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Please contact us for information on
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ReliaSoft.

SOFTWARE, EDUCATION AND CONSULTING TO EMPOWER THE RELIABILITY PROFESSIONAL

ReliaSoft Corporation is the global leader in reliability engineering software, training and services that combine the latest theoretical advances with essential tools for the practitioner in the field. We are dedicated to meeting the reliability, quality and maintenance planning needs of product manufacturers and equipment operators worldwide.



TOOLS TO EMPOWER
THE RELIABILITY PROFESSIONAL

SOFTWARE

Acclaimed for their ease of use, analytical power and unparalleled technical support, ReliaSoft's software facilitates a comprehensive set of reliability-related analysis techniques. The Synthesis Platform® facilitates intelligent integration between analysis tools.



WEBULL++

Life data analysis



ALTA

Accelerated life testing data analysis



DOE++

Experiment design and analysis



RGA

Reliability growth analysis



BLOCKSIM

System analysis using block diagrams or fault trees



RENO

Visual stochastic event simulation and risk analysis



PREDICT

Standards based reliability prediction



XPMEA

FMEA/FMECA and related analyses



RCM++

Reliability centered maintenance analysis



RBI

Risk based inspection analysis



MPC

MSG-3 aircraft systems and powerplant analysis



XFRACAS

Web-based FRACA/FRACAS and related activities



Orion API

Web-based asset performance management



ENTERPRISE PORTAL

Web-based Synthesis Portal



API

Application Programming Interfaces (APIs)

THE SYNTHESIS PLATFORM

INTEGRATION TO EMPOWER THE RELIABILITY ORGANIZATION



TOOLS TO EMPOWER
THE RELIABILITY PROFESSIONAL

EDUCATION

ReliaSoft offers an extensive curriculum of reliability training courses that provide thorough coverage of the underlying principles and theory as well as the applicable software. The complete course list and calendar of upcoming public seminars are published on the web.



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CONSULTING

ReliaSoft's expert reliability consulting services team offers a uniquely powerful combination of industry insight, unparalleled subject mastery and, most important of all, direct access to all of ReliaSoft's global resources, expertise and contacts.

www.ReliaSoft.com

ASQ Reliability Division Upcoming Webinars

100th ASQ-RD Webinar in January!!!



Improved QFN Reliability Process

January 9th, Noon US Eastern time by Lenora Toscano The adoption and use of various Quad Flat Pack (QFP) designs in today's electronics market has grown faster than originally expected. With the increase in usage there is increased demand on the inspection and reliability of these components.



Reliability Block Modeling as a decision tool

May 8th, Noon US Eastern time by Marc Banghart Reliability Block Modeling (RBD) is a versatile tool that can be used to support program decisions and their potential impact on Reliability, Maintainability, Availability and Cost. This webinar will discuss the basics of model development, underlying mathematical assumptions and appropriate uses of this type of modeling. [...]



Thermodynamic Reliability

June 12, 2014

If you are working on a space ship system, a submarine system, a circuit board, or possibly worried even about human aging, thermodynamic reliability may be a tool that we may look for unique ways to characterize and predict system degradation. Such systems are in an energetic state,

how do we characterize this state, how [...]

Webinar facts:

- The 100 Webinars means we have had approximately 10,000 attendees; which equates to 10,000 training hours in Reliability!!
- We have provided Recertification Units RU's to over 4800 individuals.

Some recent webinars:

- 40 Years of HALT: What Have We Learned?
- Reliability Centered Maintenance (RCM) analysis- an introductory overview
- A Novel View of Applying FMECA to Software Engineering
- A Bayesian Integrated Reliability Analysis of Locomotive Wheels
- Data Acquisition: A Key Challenge for Quality and Reliability Improvement

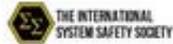
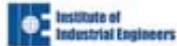


RAMS[®] 2014

The Annual Reliability and Maintainability Symposium

[Home](#)[About RAMS](#)[Venue](#)[Authors](#)[Board of Directors](#)[Management Committee](#)[Advisory Board](#)[Contact](#)

Sponsored by:



The Annual Reliability and Maintainability Symposium (RAMS[®]) is the premier event in the reliability, availability, and maintainability engineering disciplines. Combining tutorials, presentations, CEUs, certifications, and networking into one week-long program, the RAMS[®] delivers cutting edge information to all technical industries.

Advance registration is now open. Take advantage of early bird rates and follow this link to register for RAMS 2014.

[Register Now](#)

Register:

If you have special dietary needs please fill out the [Group Catering Allergy Form](#) and email it to arrangements@rams.org

We are assessing interest in a ski trip following the conference, so please indicate your interest with a checkbox at the registration page.

RAMS[®] 2014 will be held at [The Broadmoor](#) in Colorado Springs, CO, January 27-30, 2014. The hotel reservations cut-off date: Friday, December 20th, 2013.



Reliability is not just an attribute to be measured: it can be engineered into your products to provide an objective justification for customer confidence. And, this is why this year's theme is "Engineering Customer Trust".

RAMS[®] 2014 will bring together an international audience of R&M leaders and professionals for in-depth sessions and tutorials presented by top experts, exhibits featuring leading companies, keynote session insights, networking and job related opportunities, and more.

The program includes:



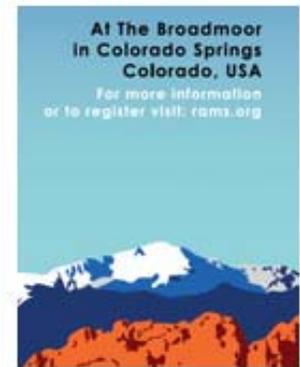
- Tutorials, from basic to advanced
- Technical paper sessions
- Panel sessions
- Exhibits program
- Certificate program
- Networking opportunities
- Short Courses

RAMS[®] 2014 Colorado Springs January 27-30

[General Chair's Message](#)

[Preliminary Program Matrix](#)

[Register Now](#)



Related Events:

[RAMS Hospitality Program](#)

Sign up for our newsletter:



[Join Our Mailing List](#)

Don't forget ASQ-RD sponsored Short Courses before and after RAMS:

Introduction to Design of Experiments, Sunday, January 26, 8AM to 5PM

Root Cause Analysis/Problem Solving, Thursday, January 30, 1-5PM, Friday, January 31, 8-Noon.

ASQ-RD sponsored Short Courses at RAMS 2014

Introduction to Design of Experiments

Day : Sunday, January 26, 8:00 am – 5:00 pm

- I. Background: Historical perspective; Why use DOE?
- II. Completely Randomized Designs (Theory, Randomization-Replication-Local Control of Error, Experimental Error vs. Sampling Error, Analysis of Variance, Multiple Comparisons, Examples)
- III. Factorial Designs (Main Effects vs. Interactions, Fixed factors vs. Random factors, Examples)
- IV. Fractional Factorial Designs (Resolution, Aliasing & Confounding, Graphical techniques for analyzing significance, Examples)
- V. Response Surface Designs - Overview
- VI. Team Exercises

Attendees are expected to bring their own laptop computers. While the course will concentrate on the content, not any particular software, a software package is necessary to facilitate learning of the material. Minitab will be used. If attendees do not have Minitab installed on their computer, a 30-day free trial can be downloaded from www.minitab.com, but please make note not to download and install the software more than 30 days prior to the course. Attendees will earn 0.8 RU's for attending.



Instructor: Jim Breneman

Root Cause Analysis/Problem Solving

Days :Thursday, January 30, 1:00 pm – 5:00 pm Friday, January 31, 8:00 am – Noon

This workshop has been developed to assist practitioners that are interested in further developing their skills in the area of Root Cause Analysis, problem solving, decision making and evidence based analysis.

The workshop introduces a prescriptive approach for investigating causes and is focused on the ability of the practitioner to effectively facilitate the process. The value of having a strong facilitator performing the causal investigation has the added value of improved effectiveness and efficiency.

This workshop focuses primarily on convergent problems analysis, but also covers divergent problems to assist the practitioner in choosing a proper approach. Root Cause Analysis is a tool that is used to identify the causes of a problem, yet in pursuit of the data to support the validity of the causes, problem solving skills are needed.

This workshop includes a number of problem solving exercises which explore how we approach problems and to demonstrate some techniques to enhance effectiveness. Decisions are being made at every step of the process, and are pivotal in determining what paths to take, what data to secure, how to analyze the data, how to render the data for reporting and how proposals will be made for resolution of the problem. In order to enhance the practitioner's effectiveness in the role of facilitator, decision theory is reviewed.

Upon conclusion of the workshop the attendee will have been equipped with a standard approach for facilitating RCA, will have learned a variety of roles that the facilitator plays in the process and will have had an opportunity to test these new skills in the workshop.



Instructor: Dave Auda

Regional Councilors— who they are, what they do

Needed:

USA Reliability Division Regional Councilors

The regional councilors support the Reliability Division mission and the ASQ strategic plan objectives, showing evidence of this activity in a measurable manner.

We are actively seeking individuals who are willing to energetically promote the practice of the reliability toolset, bring greater awareness of the benefits of the practice to the community at large, and increase the capability of the division. This is a leadership position, requiring competencies in communications, tactical planning, interpersonal skills and refinement of influential leadership skills. Contact Dan Burrows (d1c1b1@hotmail.com) or Dave Auda (davidauda@yahoo.com)



US and Canada Regional Councilor Geographical Breakdown

Regional Councilors

USA

- Region 1 - Mohammed Pourgol-Mohammad
- Region 2 - *Open*
- Region 3 - *Open*
- Region 4 - *Open*
- Region 5 - Deniz Eroglu
- Region 6 - *Open*
- Region 7 - *Open*
- Region 8 - *Open*
- Region 9 - *Open*
- Region 10 - Guangbin Yang
- Region 11 - Jason Overstreet
- Region 12 - Dan Burrows, (Jim McLinn, Co-Councilor)
- Region 13 - Mitchell Rausch, *Need co-councilor*
- Region 14 - *Open*
- Region 15 - *Open*
- Canada – *Open*



Interested in Being an International Regional Councilor for ASQ-RD?

International Regional Councilors

Same requirements as North America Regional Councilors:

- willing to energetically promote the practice of the reliability toolset,
- bring greater awareness of the benefits of the practice to the community at large
- increase the capability of the division.

This is a leadership position, requiring competencies in communications, tactical planning, interpersonal skills and refinement of influential leadership skills.

Contact Ernesto Primera
Ernesto.primera@gmail.com

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CALL FOR PAPERS

\$1000 Annual Award for Best RELIABILITY Paper

Quality Engineering is a technical journal of ASQ published by Taylor & Francis. It is directed to professionals in all engineering and management fields interested in quality improvement and reliability.

Continuing with the ASQ Reliability Division's mission to publish more technical papers on reliability, a special edition is planned to be published in April, 2015. Papers in this issue will still be eligible for the ongoing \$1000 annual award for the best Reliability focused paper published in Quality Engineering.

All submitted papers will be reviewed on an accelerated basis to allow for rapid feedback to authors to meet the timeline needed for publication. Papers should be focused on reliability and can be an applied paper, a theoretical topic or a case study.

All papers submitted for this effort should clearly state in the submission letter by adding "RELIABILITY SPECIAL ISSUE" in the cover letter. Additionally, authors can send a message directly to the Guest Editor, Trevor Craney at Trevor.A.Craney@shell.com, to alert him that they have submitted the paper for this special issue.

Deadline for paper submission: May 16, 2014.

To be eligible for the best paper award, at least one of the authors for a paper must be a member of the ASQ Reliability Division when their paper is published.



Reliability Division Webinar Series

Reliability division offers free Webinars in English, Spanish, and Chinese featuring leading international practitioners, academicians, and consultants. Enhance your reliability knowledge. For more information, click here:

<http://reliabilitycalendar.org/webinars/>

The ASQ Reliability Division Webinar Series started in November 2010. If you would like to suggest a topic or volunteer to present a webinar, please contact Fred Schenkelberg webinars@asqrd.org or Dave Auda at chair@asqrd.org. Recordings of previous webinars are available to Reliability Division members on the ASQ Reliability Division website www.asq.org/reliability

Interesting Webinar side fact: As of end of October we have had 93,000 views of the Webinar material on slideshare with >6,000 downloads.

Design of Experiments for Reliability Improvement

Many times we want to improve Reliability (or other Quality characteristics) by way of increasing positive and reducing negative factor effects that influence performance.

For example, assume we want to increase the Mean Time Between Failures (MTBF) (or decrease the Mean Time To Repair (MTTR)) of a product to improve its overall Availability. We need to first identify which factors are affecting the performance measure and then investigate what effects, if any, these factors have on it. By brainstorming we can identify candidate factors that we can then put into a Fishbone chart. If our product is a vehicle, and we want to increase its MTBF, we may have factors: Weight, Temperature, Humidity, Age, Speed, Vibration.

With 6 factors, each at just 2 levels, you would need to do at least 32 experiments (half Fraction of 2^6) to cover all main effects and 2-factor interactions. But you only have money for 8 experiments? AND you need to know which of the 6 factors are important?

One way to proceed is to do further brainstorming and depend on the experts in the room to tell you which are important. Thus reducing the number of factors to 3 or 4 where you can do a fractional (or full) factorial experiment to provide a predic-



Webinar Outreach

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OR you could use all 6 factors in a Taguchi L8 experiment:

Trial	A	B	C	D	E	F	MTTR
1	1	1	1	1	1	1	
2	1	1	1	2	2	2	
3	1	2	2	1	1	2	
4	1	2	2	2	2	1	
5	2	1	2	1	2	1	
6	2	1	2	2	1	2	
7	2	2	1	1	2	2	
8	2	2	1	2	1	1	

You have determined the most important Main effects, and you have a predictive model. Your predictive model .

Thanks to Quanterion Solution for the data idea.

Other Information

When is the next Reliability Certification exam?

The ASQ certification exam dates (by type of certification) is at :

<http://prdweb.asq.org/certification/control/dates>

Current CRE statistics:

There are currently >3000 people holding CRE certification, For calendar year 2013 there were 393 newly certified CRE's.

Local ASQ Sections and international organizations host exams all over the world. You will be asked to designate a preferred examination site on your application. If you are not a member of ASQ, please [find the Section that is closest to your location](#). If you live in a country other than the United States, Canada or Mexico, international certification affiliates administer certification exams. [Find an international certification exam location](#). ASQ will make every effort to accommodate your request. ASQ offers some [translated certification exams](#).

Volunteer Opportunities for CRE Exam Review:

As a workshop participant for the CRE exam you will assist the team in preparing the next CRE exam and you will receive 2 RUs towards recertification. Some pre-work is required and participants must sign a nondisclosure agreement which limits CRE exam preparation training for a period of two years. ASQ refunds travel expenses for the workshop.

Reliability Training Material:

Slides from Quanterion Solutions Inc Lunchtime Learning series. Topics include Reliability distributions, Weibull analysis, FMEA, DOE. Slides available at: <http://quanterion.com/Training/LunchtimeLearning/index.asp>

Upcoming Reliability Events

Click on Reliability Calendar for a current calendar:

<http://reliabilitycalendar.org/>

RAMS 2014:

The 60th Annual Reliability & Maintainability Symposium (RAMS®) will be held at [The Broadmoor](#) in Colorado Springs, Colorado on **January 27 - 30, 2014.**

<http://www.rams.org/>

LINKS

The LinkedIn groups Reliability Calendar

<http://www.linkedin.com/e/-mpj7v-gq000w4o-54/vgh/3997941/>

Tech Briefs

<http://www.linkedin.com/groups?about=&gid=3994573>

ASQ Reliability Division(1500+ members on LinkedIn)

<http://www.linkedin.com/groups?about=&gid=1875217>

Dorian Shainan's Quality Legacy

In 1936, after receiving his degree in aeronautical engineering from MIT, Dorian Shainin started his career at Hamilton Standard, working as a design engineer on the transmission of the propeller system for the Wasp engine. In 1939, Shainin was reassigned as a licensee coordinator to focus on solving problems with Hamilton Standard's new suppliers. This was part of the WWII effort and where he recognized the value of "talking to the parts." By the end of the war, he was chief inspector at Hamilton Standard. In that role, Shainin was responsible for all quality and reliability initiatives. A subsequent meeting with quality guru Joe Juran led Shainin into consulting and in 1952, after 16 years at Hamilton Standard, he took Juran's advice and joined Rath and Strong, a consulting firm in Boston.

Shainin would go on to become a nationally-known expert in quality improvement methodologies. From his desk emerged a series of papers and applications that eventually found their way into the engineering and quality quarters of numerous companies.

Among several key technologies that Shainin pioneered, the "Lot Plot" technique was remarkable for its time. This concept embodies an acceptance method that combines variables and attribute type sampling plans for 11 cases of a variable distribution. In 1952, while with Rath & Strong, Shainin played a key part in the development of Pre-control, a form of statistical process control that works on process acceptance. This technique is still in common use today. In the 1960's, under the influence of statistician John Tukey, Shainin published the well known "B vs CTM" test for detecting changes using small to modest sample sizes. This method continues to work well today in situations where a sizeable delta is expected but only a few items can be tested for validation. In the area of quality improvement and process trouble shooting, Shainin made enormous

contributions with his "Red x®" methodology and component/variable search methods. This includes his technique of combining the "best of the best" and measuring this against the "worst of the worst" when comparing groups. Practitioners know this method as the "BOB and WOW" technique.

Perhaps the greatest honor bestowed on Shainin was in 2004 when

NOTE: This article was written by HamSund Statistical Engineer Steve Luko, 2009 recipient of the Shainan Medal.



From ASQ-Headquarters in Milwaukee

Linda Milanowski has retired from ASQ. Linda was our ASQ Headquarters support. For those of us who worked with her, she was always a tremendous help and a patient listener!! (Especially for curmudgeonly Newsletter editors like myself!) We wish the best to Linda in her retirement!

If you need to contact ASQ-HQ, the following are the latest Community Development staff:

- Contact Megan Noviskis mnoviskis@asq.org for Government, Healthcare, and Electronics and Communications Division projects. She's also handling Quality in Athletics, Quality in Mining and Product Safety Interest Group projects.
- Lean Enterprise, Service Quality, or Customer Supplier Division projects contact Jeanine Becker: jbecker@asq.org
- Education or Reliability Division projects contact Jessie Kasberger: jkasberger@asq.org
- Audit Division or TCC projects, contact Chris DeMartino: cdemartino@asq.org

ASQ Learning Institute™ Fall Training

The ASQ Learning Institute™ provides you with career enhancing training to help you make an impact in your career and your organization. Take advantage of member pricing, and register for one of these upcoming courses. To register, [click here](#) or call [800-248-1946](tel:800-248-1946) and provide promo code MFGEM.

Virtual (online, instructor-led) Courses:

[Risk Management for Medical Device](#)

[Meeting FSSC 22000 Requirements Using ISO 22000](#)

Classroom (instructor-led) Courses:

[Lean Six Sigma Green Belt—Blended](#)

[Lean Six Sigma Black Belt—Blended](#)

[Consultant's Bootcamp](#)

[AS9100:2009 Lead Auditor Training \(Rev. C\) \(RABQSA Certified\)](#)

[Certified Biomedical Auditor Certification Preparation](#)

[Internal Auditor Training for AS9100](#) and [ISO 13485 Lead Auditor Training \(RABQSA Certified\)](#)

Many of our courses also count toward [recertification units \(RUs\)](#)!

ASQ On-site Training - Wherever, Whenever

If your organization is looking to train a group of 5 or more, let us bring our training to you with ASQ On-site Training. All courses can be customized to meet your needs. To learn more, visit asq.org/on-site-training.

How do you pronounce Waloddi Weibull's name? If you're-

Swedish-	Wa-Loddi Vay-Bull
Norwegian-	Wa-Loddi Vay-Bull
German-	Vah-Lodi Vy-Bull
French-	Wah-Lodi Way-Bull
Polish-	Vah-Lodi Vy-Bull
American-	Wah-Low-D Y-Bull
No one says Wee-Bull or Why-Bull!	

“An approximate answer to the right question is worth a good deal more than the exact answer to an approximate problem.”

—John W. Tukey (1915–2000)

“It is easy to lie with statistics, but it is **easier** to lie without them.”

—Charles Frederick Mosteller (1916–2006)



Excerpt #3 from “A History of Reliability” by Jim McLinn

Much of formal academic reliability work during the war had to do with testing new materials and fatigue of materials as it had in the 1930s. M.A. Miner had studied materials and then published his seminal paper titled “Cumulative Damage in Fatigue” in 1945 in an ASME Journal. Likewise B. Epstein published “Statistical Aspects of Fracture Problems” in the Journal of Applied Physics in February 1948 [2] as a way to explain why materials fail. In many applications the understanding of fractures would be key to achieving reliability.

One main military application for reliability during and after the war was still the vacuum tube, whether it was in radar systems or other military electronics. These systems had proved problematic and costly to maintain during the war. For shipboard equipment after the war, it was estimated that half of the electronic equipment was down at any given time [3]. Vacuum tubes in sockets were a natural cause of system intermittent problems. Banging on the system or removing the tubes and re-installing were the two main ways to fix failed or loose connections of an electronic system. This process of extensive repair was gradually giving way to cost considerations for the military. The various branches couldn't afford to have half of their essential equipment non-functional at any time. Some formal approaches would have to wait until the early 1950s. The operational and logistics costs would become astronomical if this situation wasn't soon rectified. Meanwhile, the IEEE formed the Reliability Society in 1948 with Richard Rollman as the first president. Also in 1948, Z.W. Birnbaum had founded the Laboratory of Statistical Research at the University of Washington which, through its long association with the Office of Naval Research, served to strengthen and expand the use of statistics [23].

The start of the 1950s found the bigger reliability problem was being defined and solutions proposed both in the military and commercial applications. The early large Sperry vacuum tube computers were reported to fill a large room, consume kilowatts of power, have a 1024 bit memory and fail on the average of about every hour [8]. The Sperry solution was to permit the failed section of the computer to be shut off and failed vacuum tubes replaced “on the fly”. In 1951, Rome Air Development Center (RADC) was established in Rome, New York to study reliability issues with the Air Force [24]. That same year, Wallodi Weibull published his first paper for the ASME Journal of Applied Mechanics in English. It was titled “A Statistical Distribution Function of Wide Applicability” [28]. By 1959, he had produced “Statistical Evaluation of Data from Fatigue and Creep Rupture Tests: Fundamental Concepts and General Methods” as a Wright Air Development Center Report 59-400 for the US military. Statistical data analysis and approaches were leading the practical solutions.

In 1950 a study group was initiated to investigate the systematic and costly failures of military electronics. This group was called the Advisory Group on the Reliability of Electronic Equipment, A.G.R.E.E. for short [4, 5]. By 1952, an initial report from this group recommended the following three items for the creation of reliable systems:

- 1) There was a need to develop better components and more consistency from suppliers.
- 2) The military should establish quality and reliability requirements for component suppliers.

3) Actual field data should be collected on components in order to establish the root causes of problems. In 1955, a military sponsored conference on electrical contacts and connectors was started, emphasizing reliability physics and understanding failure mechanisms. Other conferences began in the 1950s to focus on some of these important reliability topics. That same year, RADC issued “Reliability Factors for Ground Electronic Equipment.” This was authored by Joseph Naresky. By 1956, ASQC was offering some papers on reliability topics as part of their annual American Quality Congress. The radio engineers, ASME, ASTM and the Journal of Applied Statistics were also contributing research papers on reliability. The IRE was already holding a conference and publishing proceedings titled “Transaction on Reliability and Quality Control in Electronics”. This began in 1954 and continued until this conference merged with an IEEE Reliability conference and became the Reliability and Maintainability Symposium (RAMS).

Are you interested in volunteering? Would you like to develop your leadership and team work skills, in a team where you can make a difference?

ASQ Reliability Division leadership team is looking for a secretarial co-chair and treasurer co-chair. Responsibilities include documentation and communication within the division, with the members and with ASQ Global. You will find the requirements for the position in this document

<http://asq.org/member-leader-community/positions/division-secretary/details/index.html>

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Division Store

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Division Store (continued)

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The contents of this monograph present for software engineers, reliability engineers and software quality specialists, and managers practical tools and methods which the authors have perfected and applied in a broad range of enterprises. They include strategy and tactics for improvement of the software engineering process, software reliability models, development of trustworthy code, and reliability assessment throughout the product life cycle. Price is \$25.00 each, plus postage.

Design For Reliability - by Xijin (Bill) Tian, Ph.D., with added chapters by Drs. L.L. George, S.J. Keene, plus T. Craney and J. McLinn

This new monograph contains the entire series of articles written by Dr. Tian plus much more! The authors clearly describe practical methods they employ in effectively ensuring that high reliability goals are achieved. They integrate reliability improvement practices and methods congruent with project design rules. The additional chapters present relevant material by Drs. Larry George and Sam Keene, plus input from Trevor Craney, and James McLinn. The contents offer a practical Benchmark of resource for reliability and maintainability engineers. Price is \$30.00 each, plus postage.

Homeland Security And Reliability Airport Model - by Norman F. Schneidewind, IEEE Congressional Fellow, IEEE Fellow, Professor Emeritus: Information Sciences, Naval Postgraduate School

Dr. Schneidewind's model presented in this monograph addresses the airport security problem. It facilitated his specific recommendations to the U.S. Congress for legislative or management action to close the security loopholes. Model quantitative results are used to delineate the implications for changes in security policy at the nation's airports. The work presents solutions which maybe extended to many other security settings. Price is \$20.00 each, plus postage.

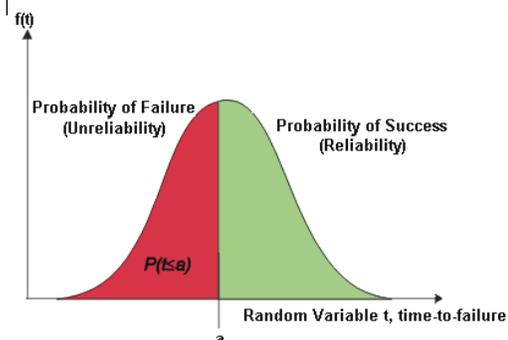


Figure courtesy of Reliasoft

2014 ASQ-RD Leadership Positions

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ASQ-RD Mission

The mission of the Reliability Division is:

- * Provide a global forum for networking among practitioners of reliability engineering, management and related topics,
- * Facilitate growth and development of division members,
- * Promote reliability engineering principles and serve as a technical resource on reliability engineering for ASQ, standards agencies, industry, government, academia and related disciplines
- * Sponsor, present and promote reliability, maintainability, and related training materials for courses, symposia, and conferences.