Audit Division
ASQ The Global Voice of Quality®

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# THE AUDIT REPORT


## Inside This Issue



## Letter From the Editor

Lance B. Coleman

Hello Everyone,

I am excited as we look ahead to our 26th Annual Audit Conference, October 12 – 13, in Addison, TX (just outside of Dallas). Registration for the conference is now open. You can go to www.asqauditconference.org to view the program, preconference tutorials, and to register.

Included in this issue are articles on "How Well Are Your Auditors Calibrated?" by Duke Okes, "Lean RPA Tool for More Effective Audits," by our own Kevin Posey, and a Tips From the Trenches column on "Auditing a Documentless System," by Cathy Fisher, as well as the latest audit-related news in our News Bytes section.

Thanks, as always, for your support in reading our newsletter. I hope you continue to benefit from reading it and appreciate any feedback you care to give.

Kind regards and safe travels,

*Lance B. Coleman*
ASQ Audit Division Newsletter Editor

## Volunteers Wanted!

Help shape *The Audit Report* by joining our Newsletter Committee. We are looking for two more volunteers to participate in our Newsletter Committee. Please email your résumé to lance@fullmoonconsulting.net if you are interested and want more information. For other volunteer opportunities within the Audit Division, contact Lawrence Mossman at mossman@netins.net.

Audit Division
The Global Voice of Quality®

## Division Vision

*To be the pre-eminent body for providing expertise on auditing and defining expectations for the audit profession.*

## Division Mission

*To develop the expectations of the audit profession and auditors. To promote to stakeholders auditing as a management tool to achieve continuous improvement and to increase customer satisfaction.*

The Audit Report *is published four times a year as a chief information resource for members and friends of ASQ's Audit Division.*

*Information about the ASQ Audit Division may also be found at asq.org/audit.*

*Reminder: All ASQ Audit Division endorsed communication and/or use of the Audit Division's logo must be approved by the Audit Division chair.*

# Message From the Conference Program Chair

Glenda West

In today's corporate structure, quality assurance includes all forms of auditing—process, product, risk, supplier, and external and internal management systems reviews. The primary objective of the ASQ Audit Division is to promote broader application and use of quality auditing principles for effective business management purposes. The Audit Conference offers our attendees both professional growth and personal satisfaction. It is dedicated to advancing the audit profession. Attend the Annual ASQ Audit Conference and learn more about auditing and the emerging roles of auditors. You will find tutorials, participation, and presentations from a total of six ASQ divisions, speaking opportunities, book discounts, multiple certification exams offered on Saturday after the conference, and plenty of networking opportunities. We will feed you, train you, educate you, and hopefully provide valuable information and tools to improve your company's quality.

Successful audit programs do not happen overnight and certainly do not happen without thorough planning and execution. In order to develop a successful audit program, you need a blueprint for the future.

*So … please join us at this year's conference*

**26th Annual ASQ Audit Conference**
**Dallas, TX, October 12 – 13**
(preconference courses October 9 – 11)

*for some good ol' southern hospitality at the gorgeous Intercontinental Hotel in Dallas, TX.*

www.asqauditconference.org

We are working hard to put together a super conference for you! Keep an eye on the conference website for updates.

*Glenda West*
Program Chair
2017 ASQ Audit Conference



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# How Well Are Your Auditors Calibrated?

No doubt most folks in quality are familiar with gage R&R studies, more generally part of measurement system analysis in Six Sigma. Such studies usually involve having multiple people measure the same items several times, and the information provided can indicate how well the measurement system (device, people) works relative to the needed accuracy.

A version known as attribute agreement analysis (AAA) is used when the measurement involved is a go/no-go decision rather than a measured value. It is often applied to visual inspections based on a qualitative analysis of test samples. Interestingly, it could also be used to evaluate performances of auditors who must decide whether a specific situation is or is not a nonconformity (NC). Confidence in auditor decisions is an especially valid concern in high-risk processes.

In order to conduct such a study, a range of audit situations would be provided to the auditors. All are asked to decide whether or not each situation is a NC. Experts should, of course, first evaluate the situations to provide the "standard" value (NC or OK) for each. Table 1 on the next page is an example using three auditors and 20 sample cases. The first time such an analysis is performed, it might still focus a bit on validity of the test cases. In this example, there is a good chance they are valid since there is not a pattern in erroneous decisions by multiple auditors on the same question(s). Note, however, that there are more Type 2 errors (red) than Type 1 (yellow).

Statistical software can then be used to evaluate the data. It will provide ratings for: 1) each auditor against the standard, 2) each auditor compared to the other auditors, and 3) the pool of auditors to the standard. Each auditor could also be compared to him/herself if asked to evaluate each situation more than once, but their familiarity with the cases after the first time (carryover

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## About the Author

***Duke Okes***
*is a knowledge architect who has been in private practice for 31 years. He holds degrees in technology, business, and education, and he has published two books:* Root Cause Analysis: The Core of Problem Solving and Corrective Action *and* Performance Metrics: The Levers for Process Management. *He is an ASQ Fellow and is an ASQ Certified Manager of Quality/Organizational Excellence (CMQ/OE), Quality Engineer (CQE), and Quality Auditor (CQA).*

## About the Article

*This article is an exploration of one topic presented by the author in an upcoming book titled* Musings on Internal Quality Audits: Having a Greater Impact, *by ASQ Quality Press.*

effect) is likely to impact the validity of this analysis. If the test was repeated after a sufficient amount of time, this effect could perhaps be reduced.

The software will typically provide the number correct and incorrect, percent correct, confidence intervals around that percent and a kappa value (similar to a correlation coefficient, where -1 means total disagreement and +1 means total agreement). Typically, anything .7 or less is deemed inadequate, .9 and above is good, and each organization can decide whether values between .7 and. 9 are acceptable based on their context and risk tolerance.

Figure 1 is a partial output from Minitab for the analysis of the data in Table 1. The conclusions that can be made are:

- Auditors 1 and 2 have acceptable kappas when compared to the standard while Auditor 3 does not.
- Auditors do not agree well with each other with a kappa of .53.
- When all auditors as a group are assessed against the standard, the kappa is .76.

Auditor 3 definitely requires additional training or coaching, or at least oversight by another auditor. If improvement does not result, then perhaps the individual simply does not have the cognitive makeup for an auditor role. Auditor 2 might be deemed acceptable, although his/her NCs might need to be reviewed by someone else prior to submitting them for corrective action so as to reduce chasing ghosts. Although Auditor 1 has a high kappa in a high-risk industry, the potential impact of a Type 2 error might be huge. Some further evaluation might still be warranted.

It is often recommended that attribute studies involve a sample size of 50, and although using a smaller sample size provides less statistical confidence, this may be acceptable for such a purely cognitive evaluation. That is, when such an analysis is conducted for people doing visual inspection (e.g., visual defects on manufactured parts, radiologists reading X-ray images), the assessment is catching potential problems with both their eyesight and interpretation. The same would be true for any testing involving the senses, such as sound, touch, smell, and

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**Table 1 – Decision Data for Three Auditors (output from SigmaXL)**

| CASE# | STANDARD | AUDITOR1 | AUDITOR2 | AUDITOR3 |
|---|---|---|---|---|
| 1 | NC | NC | NC | OK |
| 2 | NC | NC | NC | NC |
| 3 | NC | NC | NC | NC |
| 4 | NC | NC | NC | NC |
| 5 | NC | NC | NC | NC |
| 6 | NC | NC | NC | NC |
| 7 | NC | NC | NC | OK |
| 8 | NC | NC | NC | OK |
| 9 | NC | NC | NC | NC |
| 10 | NC | OK | NC | NC |
| 11 | OK | OK | OK | OK |
| 12 | OK | OK | OK | OK |
| 13 | OK | OK | OK | NC |
| 14 | OK | OK | OK | OK |
| 15 | OK | OK | OK | OK |
| 16 | OK | OK | OK | OK |
| 17 | OK | OK | OK | OK |
| 18 | OK | OK | OK | OK |
| 19 | OK | OK | NC | OK |
| 20 | OK | OK | NC | OK |

**Figure 1 – Summary Statistics (edited output from Minitab)**

**Each Appraiser vs. Standard**

Assessment Agreement

| Auditor | # Inspected | # Matched | Percent | 95% CI | Kappa | P |
|---|---|---|---|---|---|---|
| 1 | 20 | 19 | 95.00 | (75.13, 99.87) | 0.90 | 0.0000 |
| 2 | 20 | 18 | 90.00 | (68.30, 98.77) | 0.80 | 0.0002 |
| 3 | 20 | 16 | 80.00 | (56.34, 94.27) | 0.60 | 0.0038 |

**Between Appraisers**

Assessment Agreement

| # Inspected | # Matched | Percent | 95% CI | Kappa | P |
|---|---|---|---|---|---|
| 20 | 13 | 65.00 | (40.78, 84.61) | 0.53 | 0.0000 |

**All Appraisers vs. Standard**

Assessment Agreement

| # Inspected | # Matched | Percent | 95% CI | Kappa | P |
|---|---|---|---|---|---|
| 20 | 13 | 65.00 | (40.78, 84.61) | 0.76 | 0.0000 |

*NOTE: Single trial within each appraiser. No percentage of assessment agreement within appraiser is provided.*

taste. When looking solely at the cognitive process, there will inherently be more noise (consider the difficulty of applying such an evaluation to a group of psychologists trying to determine whether or not several individuals are mentally ill).

What may be more important is ensuring that the set of sample cases is broad enough to include both clear NC, clear not NC, and a range of in-between situations. A further complication is to also cover a sufficient range of QMS content (standards to which the audits are being conducted) requirements.

Note, it is not necessary to do such a calibration check with more than one auditor. Once the standard cases have been validated, calibration of a single auditor can be checked against the standards using the same statistical analysis. Additionally, such an analysis is not limited to binary (NC or OK) conditions. If an organization uses different classifications of audit findings, either an ordinal or nominal treatment of the data can be used.

## Volunteers Needed

If you have enjoyed reading our newsletter and are interested in being trained to become our next newsletter editor, please email me at lance.b.coleman@gmail.com.

If you are interested in other volunteer opportunities within the Audit Division, please let me know and I will forward your information to the correct person.

Tips From the Trenches

# Auditing a Documentless System

One of the most frequent concerns raised by auditors about ISO 9001:2015 is how to audit a quality management system (QMS) that has little or no documentation. ISO 9001:2015 doesn't include specific requirements for documented procedures and doesn't require a quality manual. However, it does require "documented information" related to a number of requirements. Several of the new requirements: context of the organization (clause 4.1), actions to address risks and opportunities (clause 6.1) and organizational knowledge (sub clause 7.1.6) have no such reference. So how can these undocumented processes be audited?

ISO 9001:2015 defines an audit as a "systematic, independent and documented process for obtaining objective evidence and evaluating it objectively to determine the extent to which the audit criteria are fulfilled." The standard defines audit criteria as a "set of policies, procedures or requirements used as a reference against which objective evidence is compared." Finally, ISO 9001:2015 defines audit evidence as "records, statements of fact or other information, which are relevant to the audit criteria and verifiable." It may appear from these definitions that audit evidence and audit criteria must be documented. However, the key questions that come to mind when limited or no QMS documentation is available are:

- How are audit criteria established?
- What audit evidence is available to evaluate conformance?

The answer to these questions is found in understanding the QMS from the process approach and applying essential auditing skills.

Consider that every activity within an organization is a process that—by definition—takes inputs and converts them to an output typically of greater value through defined steps. The basic audit criteria for any process can then be derived through a set of process questions:

- What is the desired output?
- What input triggers action toward the desired output?
- What steps are taken to transform the input to the output?

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Every process must have an owner who is responsible for its management and its related outputs. Specifically, a process owner is responsible for:

- Clearly identifying process output requirements.
- Determining process interfaces, including input triggers.
- Defining how the process is to be executed (process sequence and actions).
- Establishing process performance goals.
- Evaluating potential process risks in achieving output requirements and process performance goals.
- Determining appropriate process and output controls.
- Identifying, obtaining, qualifying, and maintaining process resources.
- Monitoring ongoing process performance (process execution and outputs, both internal and external).
- Changing/Improving the process as necessary.

Recognizing the process owner's role makes it clear that audit criteria can be determined by interviewing the said owner. His or her responses to the questions then become the basis for gathering the objective evidence to verify conformance to the stated audit criteria. This approach requires auditors to exercise several critical auditing skills:

- Initiating the audit by interviewing the process owner to establish the audit criteria. This will challenge auditors to carefully listen to the process owner's responses to audit questions and quickly organize this information into a process framework.
- Be able to quickly develop open-ended audit questions based on the process owner's response to the process questions and gather relevant audit evidence from personnel working in the QMS process, including the owner. This technique for gathering objective evidence is often referred to as corroboration.
- Be capable of synthesizing auditee responses to determine alignment with audit criteria as described by the process owner and recognize relevant audit trails for exploring the sequence and interaction of QMS processes.

While this approach to auditing certainly depends heavily on auditors' listening skills and ability to organize information, it also offers greater flexibility in the depth of questioning that can be pursued during an audit. The auditor is no longer limited to questions related to whatever is stated in QMS documentation.

This does mean a bit more work for the auditor, especially during the audit. Perhaps auditees will be nervous to not have a script to follow when responding to auditors' questions. However, the potential for exploring possible risks and opportunities related to QMS processes is much greater. These benefits will increase the value of audits and the information they can provide to process owners and the organization's leadership in better utilizing their QMS for increased customer satisfaction and improved business performance.

## About the Author

***Cathy Fisher***
*is founder and president of Quistem LLC, which provides online and on-site management systems implementation, update, and assessment services for manufacturers and other industry sectors. She has more than 30 years of respected auditing expertise, having led internal audit programs at many manufacturing organizations. Fisher also has extensive experience conducting management systems registration audits, as well as establishing supplier evaluation and development programs. She has held numerous auditor certifications, including ASQ Certified Quality Auditor (CQA), RAB-Certified Quality Systems Auditor, and ISO/TS 16949 IATF-recognized auditor.*

News Bytes

# The 26th ASQ Audit Conference Registration Is Now Available!

**DON'T MISS THIS AMAZING OPPORTUNITY!**

## 26th Annual ASQ Audit Conference

**"Blueprint for a Successful Audit Program"**

***Acknowledge the Past, Embrace the Present, Prepare for the Future***

**Preconference:** October 9 – 11, 2017
**Conference:** October 12 – 13, 2017
Intercontinental Hotel, Dallas, TX

FOR PROGRAM INFORMATION VISIT:
www.asqauditconference.org

### CONFERENCE OVERVIEW:

Successful audit programs do not happen overnight and certainly do not happen without thoughtful planning and execution. In order to develop a successful audit program, you need a blueprint for the future.

### PARTICIPATING DIVISIONS:

In order to provide you with an extensive and varied technical program, the Audit Division is being joined by the following ASQ divisions:

- Customer-Supplier
- Energy and Environmental
- Food, Drug, and Cosmetic
- Software
- Statistics

Representatives from all of these divisions will be available at the conference to speak with you in case you are interested in joining another division!

### SESSION TOPICS INCLUDE:

- Educating the audit team to inform and improve their work
- Sensing emerging risks by using key risk indicators to uncover areas of exposure
- Preparing management for risk assessments with key questions for discussion
- Learning from the past by embracing lessons learned and not repeating failures
- Applying acquired knowledge and expertise to the present
- Staying abreast of new, emerging ideas, tools, and processes to prepare for the future

Monitor the program page on our conference website to see the latest additions to our program as they become available. www.asqauditconference.org/program/

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# ASQ Audit Division Call for Nominations for the Term 2018-2019

**The Audit Division is currently accepting nominations for the positions of chair, chair-elect, treasurer, and secretary for the 2018-2019 term.**

Nominations require the submission of a nomination petition signed by at least 10 regular members, which includes Full, Senior, Fellow, and Honorary members, as well as the primary contact from Site, Enterprise, and District and School memberships.

The nomination petition must then be submitted by September 1, 2017, to Billi Jo Johnson, secretary of the Audit Division, at BilliJo.Johnson@zimmerbiomet.com, copying Nancy Boudreau, Nominating Committee chair, at nboudreau@tlcnh.com.

If you would like to submit a nomination for the position of chair, chair-elect, treasurer, or secretary, please email Nancy Boudreau at nboudreau@tlcnh.com to request a nomination petition.

A brief description of each position open for nominations is at right.

# U.S. TAG 302

The Draft International Standard (DIS) of ISO 19011 is being voted on this summer and the next U.S. TAG 302 meeting—held October 10 – 11, in Addison, TX just prior to the ASQ Audit Conference—will discuss U.S. comments put forth during the next international meeting. The third meeting of PC 302 – Auditing Management Systems (international committee of which the U.S. TAG 302 is a member will take place in Mexico City, Mexico, from November 6 – 10, 2017. Rev F of the standard is still on track to be released during the second half of 2018.

Lance B. Coleman, Audit Division DMC member is U.S. TAG 302 chair. Chiniqua Garcia of CR Bard is the U.S. TAG 302 secretary.

## Audit Division Positions Open for Nomination

### Chair

The chair provides leadership and oversight to the member unit, prepares meeting agendas, and is the presiding officer.

### Chair-Elect

The chair-elect performs duties as directed by the chair in support of the organization's mission and goals. This position succeeds to the position of chair following the completion of the first term.

### Secretary

The secretary documents member unit business and maintains the records. This position serves as the official correspondent of the member unit.

### Treasurer

The treasurer oversees funds, maintains accurate financial records, and reports on financial conditions as directed by the Society bylaws and policies and procedures.

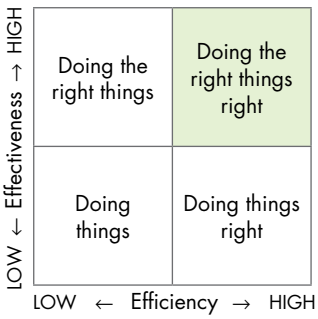
For more information or to request a nomination petition, please contact Nancy Boudreau, Nominating Committee chair, at nboudreau@tlcnh.com.

# Lean Rapid Plant Assessment as a Tool for More Effective Audits

Have you ever felt that the plant tour was a waste of time at the start of your audit? Adding aspects of the lean rapid plant assessment (lean RPA) tool to your audits can add significant value to those tours as well as your audit reports. The lean RPA tool will allow you to maximize the return on a typical plant tour for audits where assessing lean, efficiency, or effectiveness is an important goal.

In this article, we cover a brief history and background of the lean RPA methodology. We cover what it is and what it is not. We discuss the benefits of the lean RPA, and how and why it can be used in appropriate audit situations. Finally, we conclude by detailing two assessment tools that make up the lean RPA and discuss how they are used.

The lean RPA was developed by Dr. R. Eugene Woodson in 1998 based on his lessons learned in the automotive industry in the early 1980s. Woodson traces his experiences back to his time using the Toyota Production System for evaluation of automotive suppliers. Woodson first published his concept in *Harvard Business Review (HBR)*, May 2002[1]. From 1998 – 2002, Woodson, now a professor of operations management at the University of Michigan Business School, facilitated the use of the lean RPA method at least 400 times in over 150 companies. Usage of lean RPA included multiple assessments taken by teams of assessors, allowing for statistical analysis of averages and standard deviations. It also included one company where lean RPA was repeated at a later date and showed how the company improved their score dramatically based on lean-focused continuous improvement.




Let's get more specific and talk about what the lean RPA is. One fundamental idea behind the lean RPA is that to a trained eye, even a quick plant tour can reveal a lot about a company. I sometimes call this Murphy's Law of auditing: Whatever is going wrong in your plant, an auditor will be there to see it exactly when it happens. The corollary, though, should also be true; the things going right in the plant will also happen when an auditor is there. Compliance-based auditing only

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## About the Author

***Kevin W. Posey*** *is a senior manager of quality for risk management at Beckman Coulter and is a quality and regulatory executive manager and leader with over 27 years' international experience in quality management, product development, manufacturing, and regulatory approval for medical devices, in vitro diagnostics, defense and aerospace, mining and exploration, as well as industrial equipment and controls. He is an active practitioner and also occasionally consults, trains, writes, and speaks on quality management, auditing, innovation, and medical devices. Posey holds an undergraduate degree in aerospace engineering from the University of Texas and an MBA in international business from Penn State. He has co-authored two books in the quality arena:* The Executive Guide to Innovation, *and* The Supplier Quality Professional Handbook, *both from Quality Press. Posey has been an instructor and course developer with ASQ since 2009, teaching the CQA, CSQP, and CCT refresher courses. He is an ASQ Senior member and an ASQ Certified Quality Auditor (CQA), Biomedical Auditor (CBA), Manager of Quality/Organizational Excellence (CMQ/OE), Quality Engineer (CQE), Software Quality Engineer (CSQE), Calibration Technician (CCT), Six Sigma Green Belt (CSSGB), and Quality Technician (CQT).*

focuses on Murphy's Law and finding out where the nonconformances are and where the process noncompliances exist. Lean RPA drives an auditor to also look for what's going well: Is there evidence of lean principles in action? Is there objective evidence of efficiency, effectiveness, or continual improvement? Are lean principles consistent throughout the factory, or just in pockets of best practices? Using lean terminology, we might refer to lean RPA as a "gemba walk," but one that is focused by the audit purpose and the limited timeframe available. Key to the gemba walk is that the lean RPA must go to the place where things are happening. You can't assess lean based on procedures and records alone.

Now that we've talked a bit about what lean RPA is, let's consider what it isn't. First, it is NOT a substitute for due diligence in an acquisition. Second, it is only ONE factor to consider when assessing a company and is not the whole picture. Finally, it is NOT a complete lean assessment, but instead is a tool for rapid or initial assessment. With those limitations in mind, why would we choose to use the lean RPA? That's a great question, and the answer is quite simple: Lean RPA is a simple and powerful tool to take visual cues about an operation's strengths and weaknesses and rapidly assess the leanness of the operations. It can also help us identify (potential) problems with suppliers early. Internally used, lean RPA can be a powerful tool to identify areas of efficiency and effectiveness that should be treated as best practices.

Okay, now we that we know what lean RPA is and what it isn't … you've got to be wondering how it applies to audits, right? More directly, can it be used during plant tours for first- and second-party audits? And of course, the answer is yes; it began life as a supplier audit tool with Toyota, so there is good history for its use and applicability. In fact, lean RPA applies very well during plant tours for both internal and supplier party audits. But wait just one moment … isn't it important that we not take notes during the tour? Doesn't note taking detract from picking up visual cues and impede communication with employees on the plant floor? Well yes, at least based on the way I have trained and mentored auditors. So application of this tool during audits requires proper planning. Appropriate use means you need to have a plan for the tour, and solid enough memory to record your notes AFTER the tour.

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**Figure 1: Lean RPA Rating Sheet Template**

| RAPID PLANT ASSESSMENT TABLE 1—RATING SHEET | | PLANT: RATED BY: | | | DATE: | | | |
|---|---|---|---|---|---|---|---|---|
| | **Ratings →** | Poor | Below average | Average | Above average | Excellent | Best in class | |
| **No.** | **Measure ↓ Score →** | **1** | **3** | **5** | **7** | **9** | **11** | **SCORES** |
| **1** | Customer satisfaction | | | | | | | |
| **2** | Safety, environment, cleanliness, and order | | | | | | | |
| **3** | Visual management deployment | | | | | | | |
| **4** | Scheduling system | | | | | | | |
| **5** | Product flow, space use, and material movement means | | | | | | | |
| **6** | Inventory and WIP levels | | | | | | | |
| **7** | People, teamwork, skill level, and motivation | | | | | | | |
| **8** | Equipment and tooling state and maintenance | | | | | | | |
| **9** | Ability to manage complexity and variability | | | | | | | |
| **10** | Supply chain integration | | | | | | | |
| **11** | Quality systems deployment | | | | | | | |
| | **TOTALS →** | | | | | | | |

So, what makes up the lean RPA? The first key tool is the RPA rating sheet, which includes 11 categories that are rated numerically to assess the leanness of the company. The numerical rankings are based on six predefined levels of performance. In Figure 1 below, you can see the categories and rankings in one example of an RPA rating sheet template. The second key tool is the lean RPA questionnaire (in Figure 2), which includes 20 questions that the auditor provides simple yes or no answers to. These 20 questions will challenge the auditor to determine if the company uses best practices in each of the 11 categories from the lean RPA rating sheet. Each question may only be answered yes if the plant adheres to the lean principle implied by the question as supported by objective evidence. These two tools are designed to work together by correlating items on one tool with the other. Specifically, as indicated in Table 1: Correlation of Lean RPA Categories to Questions, every category from the rating sheet has several questions on the questionnaire that correlate with it. The correlation helps ensure consistency across both rating tools. For example, if you rated customer satisfaction as poor but answered Questions 1, 2, and 20 as yes, you have a potential error in your methodology.

Now that you've seen both tools used in lean RPA, you may be wondering: Do I really need to use both tools? Ideally, yes you should. You would normally complete the Figure 2 lean RPA questionnaire first, and then use it as well as your observations from the tour to assess the more detailed numerical

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**Figure 2: Lean RPA Questionnaire Template**

| RAPID PLANT ASSESSMENT<br>TABLE 2—ASSESSMENT QUESTIONNAIRE | PLANT:<br>DATE: | |
|---|---|---|
| **No.** | | **YES/NO** |
| 1 | Are visitors welcomed and given information about plant layout, workforce, customer, and products? | |
| 2 | Are ratings for customer satisfaction and product quality displayed? | |
| 3 | Is the facility safe, clean, orderly, and well lit? Is the air quality good and noise levels low? | |
| 4 | Does a visual labeling system identify and locate inventory, tools, processes, and flow? | |
| 5 | Does everything have its own place, and is everything stored in its place? | |
| 6 | Are up-to-date operational goals and performance measures for those goals prominently posted? | |
| 7 | Are production materials brought to and stored at line side rather than in separate inventory storage areas? | |
| 8 | Are work instructions and product quality specifications visible at all work areas? | |
| 9 | Are updated charts on productivity, quality, safety, and problem solving visible for all teams? | |
| 10 | Can the current state of the operation be viewed from a central control room, on a status board, or on a CRT? | |
| 11 | Are production lines scheduled off a single pacing process with appropriate inventory levels at teach stage? | |
| 12 | Is material moved only once, as short a distance as possible, and in appropriate containers? | |
| 13 | Is the plaint laid out in continuous product flow lines rather than in "shops"? | |
| 14 | Are work teams trained, empowered, and involved in problem solving and ongoing improvements? | |
| 15 | Do employees appear committed to continuous improvement? | |
| 16 | Is a timetable posted for equipment preventive maintenance and continuous improvement of tools and processes? | |
| 17 | Is there an effective project management process, with cost and timing goals, for new product startups? | |
| 18 | Is a supplier certification process—with measures for quality, delivery, and cost performance—displayed? | |
| 19 | Have key product characteristics been identified and fail-safe methods used to forestall propagation of defects? | |
| 20 | Would you buy the products this operation produces? | |
| | TOTAL NUMBER OF YESES | |

**Table 1: Correlation of Lean RPA Categories to Questions**

| LEAN RPA RATING CATEGORIES | LEAN RPA QUESTIONS |
|---|---|
| Customer Satisfaction | Questions 1, 2, 20 |
| Safety, Environment, Cleanliness, and Order | Questions 3-5, 20 |
| Visual Management System Deployment | Questions 2, 4, 6-10, 20 |
| Scheduling System | Questions 11, 20 |
| Space, Movement, and Flow | Questions 7, 12, 13, 20 |
| Inventory and WIP | Questions 7, 11, 20 |
| Teamwork, Skills, and Motivation | Questions 6, 9, 14, 15, 20 |
| Tooling and Equipment Condition/Maintenance | Questions 16, 20 |
| Management of Complexity and Variability | Questions 8, 17, 20 |
| Supply Chain Integration | Questions 18, 20 |
| Quality System Deployment/Commitment | Questions 15, 17, 19, 20 |

rating in Figure 1, using Table 1 as your guide to apply the question results to the correct categories for rating. However, I believe reviewing Figure 2 before a tour, and then filling out the answers immediately after the tour, without using Figure 1, can still highlight major areas of positive and negative with minimal time investment and without disrupting the tour or audit flow.

In Woodson's intended implementation of the lean RPA, an assessment group is selected and then trained to go in as a team to perform the assessment, each member focusing in areas where they are an SME, almost like an audit team. A full lean RPA like this could easily involve three to five people with an entire day (or more) spent on-site. This may be perfect if you are doing due diligence for an acquisition or merger, but isn't necessary for our interest in using the methodology to get more value from our audit tours.

Now that the assessment is complete and we have some concrete results, what do we do next? In the fashion of any good KPI or metric, we first consider where the rating sheet scores rank compared to maximum and minimum. The possible range of scores is 11 to 121, with a median of 55. With results in hand, we can certainly compare and benchmark with Woodson's results in the *HBR* article[1]. Overall, our result is going to tell us whether there is room for improvement (most likely), or if the assessed factory is already running world-class lean processes. In the likely case where there's room for improvement, the scores on the rating sheet are the roadmap for determining a course of focused improvement. Categories with low ratings are instantly visible opportunities for improvement and should be the first steps on a company's journey to continuous improvement in lean processes. The best way then to measure our progress or improvement is one or more follow-up lean RPA visits. The RPA results can be one metric showing improvement in the organization's/factory's advancement. A yearly assessment can be a powerful tool in a journey toward world-class lean operations.

Finally, to bring our lean RPA journey to a conclusion, let's remind ourselves what we have covered. In this article, we covered a brief history and background of the lean RPA methodology. We covered what it is and what it is not. We discussed the benefits of the lean RPA, and how and why it can be used in appropriate audit situations. Next, we went through the details of the two assessment tools that make up the lean RPA and discussed how they are used. Hopefully, as I have concluded, you can see how adding aspects of the lean RPA to audits can add value to audit tours and reports. Also, that the lean RPA tool can maximize return on audit time spent during a plant tour—particularly where assessing for lean—efficiency or effectiveness is an important goal.

## Reference

1. "Read a Plant – Fast," R. Eugene Goodson, *Harvard Business Review*, May 2002, p. 107.

# Newsletter Publishing Guidelines

## Authors Wanted!

*The Audit Report* staff is looking for authors. Share your expertise with other audit professionals while adding to your own credentials. Writing for the newsletter also earns CEUs to submit with your certification journal. If interested, please email submittals to lance@fullmoonconsulting.net. Guidelines are below.

## Main Factors

1. Technical Merit
   - Includes correct facts
   - Relevant to our mission
2. No selling of services
3. Nothing offensive
4. Original content only. Nothing previously published or presented, without prior approval by review committee.

## Additional Factors

5. Not too similar to something recently done
6. Desired subject matter – how timely is material?
7. Well written (not requiring extensive editing)
8. Needed length

## Categories

Newsletter submittals should fit into one of the following categories:

- Tips From the Trenches – tools, tips, and techniques for auditors
- Faces in Auditing – new, up-and-coming professionals of note in the field of auditing
- Articles, case studies, or book reviews
- News Bytes – event coverage, announcements, and other audit profession-related news

## Length

Desired length for tips, book reviews, articles, and case studies is 400 to 800 words. Tips and book reviews should be in the 400- to 600-word range, articles should be anywhere from 400 to 800 words, and case studies should be 500-plus words. If a submittal goes beyond 800 words, then we may look at breaking it into more than one part.

## Review and Selection Process

All submitted works will be reviewed by at least two members of the review committee, which consists of the newsletter editor and four other members. The subject for a book review should be approved in advance by either two members of the review committee or by the newsletter editor. The newsletter editor will determine when accepted articles will be published. Submittal of an article does not guarantee publication.

## Other

All articles containing photos should be submitted with the photo(s) as a separate jpeg attachment.

## Calendar/Main Theme(s)

Submittals relating to the main theme and from division members receive priority.

| ISSUE | SUBMITTAL DEADLINE | ISSUE'S MAIN THEMES |
|---|---|---|
| March 1 | January 15 | Preview of ASQ World Conference on Quality and Improvement and open topics |
| June 1 | April 15 | Recap of ASQ's WCQI and open topics |
| September 1 | July 15 | Training, certification, back-to-school, and Audit Conference |
| December 15 | October 31 | Conference recap, year-end reflection, and looking ahead to next year |

## ASQ Audit Division

2016-2017 Organizational Chart

- **Shirl Furger** — ASQ Community Development
- **Dani Piccotti** — TCC Group 1 Facilitator
- **Nancy Boudreau** — Immediate Past Chair
- **Cindy Bonafede** — Chair
  - Nominating Committee
  - Audit Division Awards
  - **Glenda West** — Chair-Elect
  - **Billi Jo Johnson** — Secretary
  - **Kevin Posey** — Treasurer
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- **George Kiakis** — Vice Chair Communications
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  - **Lance Coleman** — Newsletter Editor
  - **Erin Lawrence** — Social Responsibility Chair
  - **Open** — Web Liaison/ Photographer
- PAR Awards
- Strategic Planning
- **Glenda West** — TCC Conference Liaison
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  - **Open**
  - **Open**
  - **Yara Linares** — Spanish Course Developer
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  - **Ann Azroff** — Certification Liaison
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  - **Ted Williams** — IT

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- **Officer**
- **Division Management Committee**

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Region 5 – Bill Erickson
Region 6a – Terrish Floyd
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Region 9 – Michelle Henderson
Region 9 – BJ Johnson (DRC)
Region 9 – Rajesh Sharma (DRC)
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Region 11a – David Wu
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Region 13 – Lawrence Mossman
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Region 13 – Kathy Maize (DRC)
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Region 15a - Gwendolyn Bodry (DRC)
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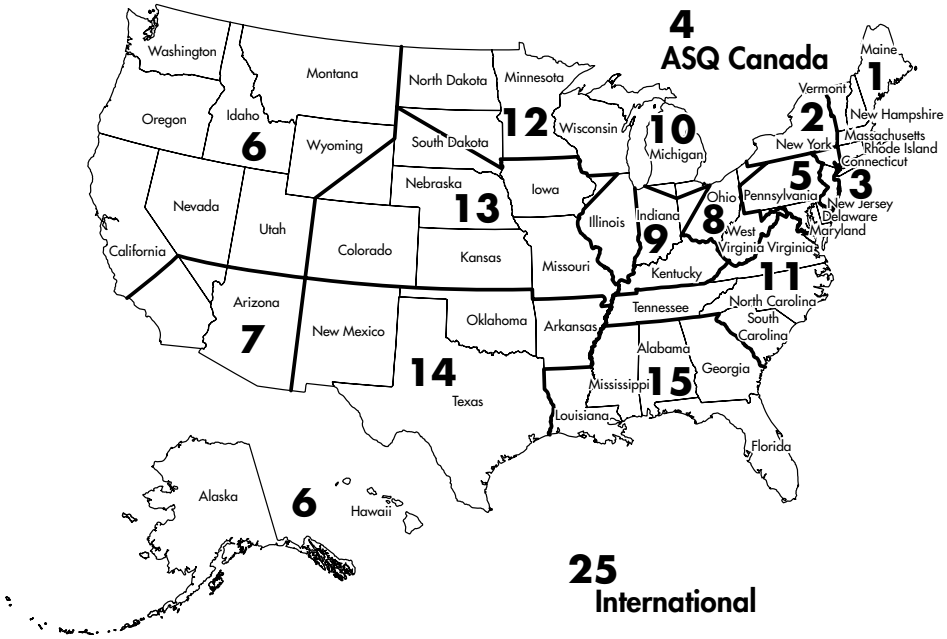
East Asia – Mila Cabuloy
Jamaica - Jacqueline Scott- Brown
Newfoundland - Karen Knoftall
Saudi Arabia – Afaq Ahmed

May 2017

# ASQ Region Map



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