RAILWAY SUPPLY INSTITUTE
Support, Connection, Advocacy

RSI Quality Newsletter

Volume 16, 4th Quarter 2023

INSIDE THIS ISSUE

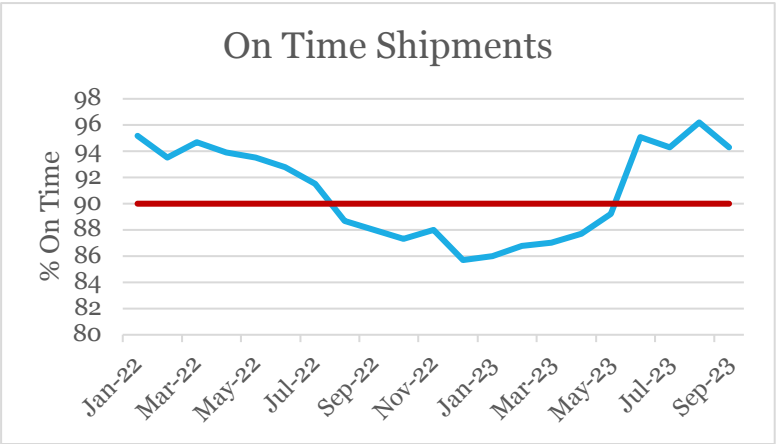
WHAT ARE KPI'S? WHY DO YOU NEED THEM? AND HOW CAN THEY HELP YOU?

Submitted by Donna Jacobi – Amsted Rail

KPI stands for Key Performance Indicator. KPI's are measures of critical (key) quality objectives that are used to track performance over time. For example, a facility might have a KPI for on time shipments, scrap rate, or part per million (PPM) defects. The KPI should be a measure of something that is critical to the success of the business. The facility would need to establish a goal for each KPI and then evaluate how they are doing against that goal.

Although the terminology may differ at times, establishing KPI's is required by both the AAR M-1003 and ISO 9001 quality standards. In both standards it is necessary to have KPI's and to report on them as part of Management Review (See section 2.4.4.1.6 in M-1003 and sections 9.1.1, 9.1.3, 9.3.2, and 10.3 in ISO 9001). But KPI's are much more than just a necessary requirement, they can be a tool to drive continuous improvement. Employing the basic tool of a trend chart can help boost the benefit of a KPI.

To illustrate, below is a chart showing data for on time shipments of a fictious facility from January 2022 – September 2023. Included in the chart is the facility's goal of a minimum of 90% on time shipments. The chart helps to show that performance began trending down before it slipped below goal in August 2022. If the facility had not been charting performance over time, they may not have noticed that on time shipments was an issue until it dropped below the goal. A delay in action may equate to additional months of performance continuing to drop.



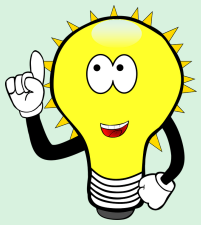
Many facilities measure KPI performance on a monthly basis, but it is up to each facility to choose the measurement frequency that best supports their business. The addition of a chart can aid in the detection of a trend. Any negative trend can have action taken to address the causes and bring performance back on track. As performance improves over time, goals can be increased, further driving continuous improvement.

SIX SIGMA & QUALITY ASSURANCE APPLICATION

Submitted by Adalia Herrera – TrinityRail

Six Sigma (6σ) and quality assurance are related concepts and methodologies that aim to improve the quality of products and processes within an organization. While they have distinct approaches and tools, they aim to enhance development and service quality. Six Sigma can be seen as a subset of quality assurance. It provides specific methodologies and tools that can be part of an organization's broader quality assurance efforts. Applying Six Sigma in quality assurance involves a structured approach to improve processes and reduce defects or errors. Here are the key steps to using Six Sigma in quality assurance:

1. Define the Problem:
    - Clearly define the problem or quality issue you want to address. Use data and specific metrics to quantify the problem's impact.
2. Measure:
    - Collect relevant data on the current process or system. This involves identifying process inputs (X) and outputs (Y) and measuring their performance using metrics like defects per unit, defect rates, or process capability indices.
3. Analyze:
    - Analyze the data to identify the root causes of defects or quality issues. Standard tools used in this phase include:
        - Cause-and-effect diagrams (Fishbone or Ishikawa diagrams)
        - Pareto charts prioritize factors causing defects.
        - Statistical analysis, such as hypothesis testing and regression analysis
    - Identify critical process parameters (Critical to Quality or CTQs) significantly affecting quality.
4. Improve:
    - Develop and implement solutions to address the identified root causes. This may involve process redesign, changes in materials or equipment, or procedural improvements.
    - Utilize various improvement tools like Design of Experiments (DOE) to optimize process settings.
    - Pilot-test the improvements before full-scale implementation to ensure they work as intended.
5. Control:
    - Establish control measures and mechanisms to ensure the improved process remains stable and meets quality standards. This includes:
        - Creating control charts to monitor process performance over time.
        - Implementing standard operating procedures and work instructions.



Have an Idea for an Article?

Please submit your drafts to Gary Alderson at **alderson@alltranstek.com.** or Alfredo Ricardo at **ricardo@alltranstek.com**

Interested in Joining RSI QAC?

Contact Sheena Prevette at **sprevette@rsiweb.org**

Not Getting the Newsletter and Want to Subscribe?

Contact Sheena Prevette at **sprevette@rsiweb.org**

- Training personnel in the new processes and ensuring they follow them.
- Setting up regular audits and reviews to maintain process control.

6. Verify Results:
    - Continuously monitor and measure process performance to confirm sustained improvements.
    - Use statistical methods to validate that the process has achieved the desired level of quality and reduced defects to an acceptable level.
    - Calculate the return on investment (ROI) to assess the financial benefits of the Six Sigma project.
7. Standardize and Document:
    - Document all aspects of the improved process, including standard operating procedures, control plans, and process maps.
    - Share knowledge and best practices with relevant teams or departments to ensure the changes are institutionalized.
8. Continuous Improvement:
    - Encourage a culture of continuous improvement within the organization. Regularly review processes and gather feedback for further enhancements.
9. Certification and Training:
    - Consider training and certifying employees in Six Sigma methodologies to ensure the principles are consistently applied throughout the organization.

It's important to note that Six Sigma is often organized into different belt levels, including White, Yellow, Green, Brown, and Black Belt, with increasing expertise and responsibilities. Depending on the project's complexity, you may involve individuals with appropriate belt certifications to lead and support the initiative. Six Sigma is not a one-time effort but a continuous journey to maintain and improve quality standards. It's crucial to involve cross-functional teams and engage employees at all organizational levels to achieve sustainable results in quality assurance.

THE ROLE OF THE OUTSIDE INSPECTOR (OSI)

Submitted by – Alfredo Ricardo AllTranstek, LLC

Outside Inspectors are individuals hired by a car owner or company who are experienced in the inspection of railroad freight cars. The Outside Inspector (OSI) can be from a larger company who employees many inspectors, or they can be an individual who has a small company and employees one or two people. The individuals come from different backgrounds, and some specialize in tank car inspection while others specialize in hopper car and other freight car inspections. They are usually chosen based on their experience and overall integrity in the rail industry.

The car owner coordinates with a freight car facility to schedule the OSI when cars are ready for the inspection. This schedule coordination is usually the duty of the QA manager of the facility but other personnel at the facility may coordinate the schedule.

Typically, an Outside Inspector, (OSI), is tasked by a car owner, lessor, seller, or buyer of railcars to perform an inspection. These inspections can either have a very specific or a very broad scope. The scope can vary depending on the need(s) of the specific client, and could include but are not limited to:

1- Joint railcar inspections, which can be between railroads and car owner reps or by the repair facility performing the repairs, on behalf of both.

2- Outbound inspections of completed freight cars.

3- In process and final inspections for a specific cause.

4- Specific repairs or projects.

5- Special processes such as Coatings and Linings, Nondestructive Testing (NDT), and Welding.

6- Service equipment changes

7- New car in process and/or final inspections

8- Railroad wreck repairs

The OSI is employed to ensure railcar manufacturing or repair operations are performed in accordance with the equipment owner and applicable rules and regulations, by following owner provided or approved procedures and documentation.

OSI's hired by a car owner may be subject matter experts related to the given inspections.

It is important that the facility personnel understand what the OSI has been tasked to inspect and they must be aware of the reason for these inspections to avoid miscommunication and possible unnecessary conflicting information that could lead to more serious situations if the shop personnel don't understand the role of the OSI.

2024 AAR QUALITY ASSURANCE TRAINING SCHEDULE

Course	Date	Location
Basic Auditor Training Class	March 19-21	Guadalajara, Mexico (Spanish)
	May 21-23	San Diego, CA
	July 16-18	New Orleans, LA
	October 22-24	Nashville, TN
Advanced Auditor Training Class	June 4-6	Indianapolis, IN
	June 18-20	Saltillo, Mexico (Spanish)
	August 6-8	Pueblo, Colorado
	November 5-7	Lincoln, Nebraska
Root Cause Analysis Class	August 27-28	Guadalajara, Mexico (Spanish)
	November 19-20	Pueblo, Colorado

Click here to register: http://www.aar.com/standards/QA_training.php

2024 AAR QUALITY ASSURANCE & INDUSTRY CONFERENCE Registration is now open for the 2024 AAR Quality Assurance & Industry Conference schedules for February 27 – 29 in Phoenix. **Click here for more information**

USEFUL LINKS

Railway Supply Institute

RSI QAC & Previous Newsletters

RSI Tank Car Resource Center

Registry of M-1003 Certified Companies

M-1003 Frequently Asked Questions

American Society for Quality - Training

RSI 100

AAR M-1003 Certification on-line Application

AAR M1003, Section J Specification for Quality Assurance

AAR Training Schedule

AAR Circulars

MSRP Publication Current Revision Status

AAR Online Material Nonconformance Reporting System (Chapter 7)

AAR FAQ Page includes QAPE

THE FOLLOWING RSI QAC TEAM MEMBERS WORKED ON THIS NEWSLETTER:

Gary Alderson – AllTranstek

Donna Jacobi – Amsted Rail

Alfredo Ricardo – AllTranstek

Sheena Prevette – RSI

Michael Ruby – TrinityRail