Causes of Non-Treatment of Nonconformities in a PIM Company X

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Abstract

To remain competitive, organizations have been adopting quality management systems to continually improve their performance and ensure the quality of products and services. However, many companies have shown some difficulty in the effectiveness of the corrective action process for nonconformities identified in external audits, internal assessments, and legal compliance assessments. This study aims to identify the causes that lead to the effective non-treatment of nonconformities in a company X of the Manaus Industrial Pole (PIM). The methodological approach used was the case study research, whose data collection was through brainstorming, Ishikawa diagram and meetings with managers and workforce in 2014. The compilation and analysis of the data allowed to conclude that the main faults detected were in the labor category, which showed that the teams did not have the knowledge and skills needed to handle nonconformities.

Key-words: Nonconformity; Quality; Causes;

1. Introduction

The pursuit of excellence in an increasingly competitive market makes companies look for a differentiating factor that keeps them in the market, and increasing quality plays an extremely important role in this scenario, providing companies with mechanisms to control their processes and continuously improve them to satisfy and exceed consumer expectations and increase their competitiveness (GALDÁMEZ; CARPINETTI; GEROLAMO 2009; OLIVEIRA; MARTINS, 2008; OLIVEIRA, 2011).

The quality of the services provided, the satisfaction of customers and other stakeholders are extremely important and decisive factors for companies. Therefore, problems that affect and compromise the quality of products and services should have special treatment. Many companies lose efficiency and productivity because of failure in the treatment of their problems, negatively affecting the philosophy of continuous improvement.

Besides, some organizations fail to manage and analyze their nonconformities, regarding the planning of corrective and preventive actions that combat the origin cause of the problems and, thus, avoiding the repetition of the unwanted event.

And it was the scenario that the research was realized in the Company X (fictitious name given for confidential reasons), a case study conducted in a large company linked to the oil products transportation segment. The company has procedures and an integrated nonconformity treatment system (SIGA).

Nevertheless, there is a significant number of Anomaly Treatment Registration (RTA) forms that are treated superficially, without reviewing the root cause of the problem and with an extensive delay of the deadline. This fact deserves attention since proper management of nonconformities is a crucial point for the improvement of the Quality Management System (QMS). Therefore, the causes of failures and their effects must be investigated and adequately treated on time.

In this study, the term nonconformity (NC) will be characterized by non-compliance with a requirement defined in standards, procedures, legislation, policies, and internal documents, among others.

1.2 Importance of Research

For the academic world: the article could be used in class room for teaching and discussions purposes, specially in quality management subjects. Also, it can contribute to generate new topics for researchers interested in the theme;

For the company: reducing the recurrence of nonconformities will increase organizational productivity and efficiency and waste costs will not be borne by the product with the consumer. Effective management of nonconformities as one of the pillars of the QMS will help to block the effects of mismanagement by repeating a failure or even reaching larger proportions that match the company's image and therefore society;

For society: contribute to the reduction of costs related to NC passed on to the final product.

1.3 Objectives

To identify the causes that lead to the effective non-treatment of nonconformities in Company X of the Manaus Industrial Pole (PIM).

To propose an action plan to reduce the undesirable effects arising from the ineffective treatment.

2. Theoretical Referential

2.1 Quality Management

Companies are increasingly organizing and adopting quality management as a way to help them achieve their goals (PINTO; CARVALHO; HO, 2006). Quality management makes it possible to obtain everyone's commitment to excellence in processes, products, and services, prioritizing their continuous improvement and consequent customer satisfaction (VIEIRA, 2013).

For Oliveira (2011), the quality of goods and services should be seen as a bigger issue within the company and not just as an aspect focused on the production sector.

Quality management practices include the continuous pursuit of opportunities for improvement and should be incorporated into the organizational culture to perpetuate a climate of cooperation and teamwork within the organization.

For this to be done more efficiently, organizations must place great value on quality, which will require greater creativity from managers, other employees, recognition of individual and collective efforts, resulting in many improvements in both product production, as to perform more reliable and efficient services.

The good performance of a quality system depends on the commitment of the human factor, that is, the

qualification, training, and motivation of those involved in the process (SILVA, 2003).

Linguistically, quality comes from the Latin ***qualis***, which means "as it actually is." Technical Standard NBR ISO 9001:2008 - Quality Management System - Fundamentals and vocabulary define quality as “The degree to which a set of inherent characteristics satisfy requirements”.

However, there is no consensus on the definition of quality. For Oliveira (2011) quality has many definitions, which may vary according to the context, the business segment can be termed as compliance with customer requirements, converging to stakeholder needs and preventing and managing nonconformities, including the actions for corrections.

Classic authors as Crosby, Deming, Feigenbaun, and Juran present different concepts concerning quality, but there is a predominance of two meanings: “the absence of failures” and “satisfying customer needs”.

Part of quality management is responsible for identifying and addressing nonconformities, and the negative consequences of poor quality management result in errors, rework, employee dissatisfaction, waste, dissatisfied customers, and worn-out image.

Additionally, quality management practices can be certified through the implementation of Quality Management Systems (QMS), which focuses on the development, implementation, maintenance and quality improvement of organizational processes, representing the part of the organization management system that aims to achieve results concerning the quality objectives to reach the needs, expectations and requirements of stakeholders (ABNT NBR ISO 9001: 2008).

2.2 Quality Management System

Quality management systems (QMS), for Oliveira (2011), are a means for introducing and systematizing the philosophy and quality procedures in organizations.

Lagrosen and Lagrosen (2003) define QMS as a collection of quality management techniques and models for both manufacturing and service industries. Valls (2005) and Ueno (2008) complement the definition of QMS as a form of management defined by top management based on the identification of customer requirements, process standardization, and continuous improvement.

For Poksinska et al. (2006), several studies indicate that QMS provides important benefits to companies. However, existing difficulties are also identified. Benefits include improved processes, products and services, increased customer satisfaction, improved company image, new market opening and greater competitive advantage over competitors. About the difficulties, the following are observed: resistance to change, difficulty in understanding and accepting certain quality precepts, lack of compromise of the middle management and low involvement of top management, including small capital contribution to activities associated with quality.

To meet market needs about QMS, a set of requirements suggested by the NBR ISO 9001: 2008 standard arised aiming to guarantee consumers products and services offered according to the requirements. The standard induces a continuous improvement system, which can be obtained through the Deming cycle (PDCA) - Plan, Do, Act and Check;

According to ABNT NBR ISO 9001:2008, the PDCA model can be summarized as follow:

Plan: establish the objectives and processes necessary to generate results following the customer

requirements and organizational policy;
Do: implement the processes;
Check: monitor and measure processes and products regarding policies, objectives, and requirements for the product/service and report results;
Act: take actions to improve process performance continually.

2.3 Quality Tools

Quality tools have been developed and refined to support the application and use of quality management in companies. These include Flowcharts, Ishikawa Diagrams, Histograms, Pareto Charts, Control Charts, and Scatter Diagrams.
According to Bamford and Greatbanks (2005); Alsaleh (2007), these tools are used to develop, implement, monitor quality precepts in organizations, representing important and necessary tools for QMS to achieve maximum efficiency and effectiveness.
Using quality tools is a way of identifying where problems are and how to solve them.

2.4 Continuous Improvement

Continuous improvement is a fundamental element of quality practices. Its objective is to systematically evolve projects, processes, products, and services, overcoming obstacles, solving problems, learning from mistakes and successes, teaching, knowing, sharing and contributing to both individual and organizational growth (BESSANT; CAFFYN; GALLACHER, 2001; MESQUITA; ALLIPRANDINI, 2003; JAGER et al., 2004).
The goal of continually improving a QMS is to increase the probability of growing customer and other stakeholder satisfaction.
Process improvement is a necessity present in the routine of all organizations. Feedback from customers and other stakeholders, audits and review of the quality management system can also be used to identify opportunities for improvement.
Irani et al. (2004) highlight two groups of characteristics essential for the practice of continuous improvement. The first group deals with individual characteristics regarding employee skills and behavior. The second group consists of the organizational characteristics, it refers to the cultural and structural aspects that promote it.
So, people need to have the skills and knowledge indispensable for problem-solving, enabling participation through ideas, suggestions, and executions.
The term competence have two meanings, one facing the organizational level and the other towards the individual. The first refers to the core competencies of every organization that gives it a competitive advantage. The second, the individual, concerns the contextualized mobilization of employee knowledge and know-how to generate economic value for the organization and social value for itself (GONZALEZ, 2011).

In the context studied in this article, the implementation of the philosophy of continuous improvement is only solidly perceived when there is a commitment to treat any “variation” that deviates from the concept

of quality.

Actions for improvements under ABNT NBR ISO 9001:2008 include the following:

a) Analysis and assessment of the existing situation to identify areas for improvement;

b) Establishment of improvement objectives ;

c) Search for possible solutions to achieve the objectives;

d) Evaluation and selection of these solutions;

e) Implementation of the chosen solution;

f) Measurement, verification, analysis, and evaluation of implementation results to determine if objectives have been reached;

f) Formalization of alterations.

2.5 Organizational Learning

According to Bhuiyan et al (2006), quality and its improvement are based not only on formal tools and organizational processes but also on the solidification of norms, values and assumptions, that is, a culture that stimulates learning and improvement of the skills of individuals.

Organizations that engage continuous learning in their culture have, according to Gonzalez (2011), six main routines: 1) Systematic problem solving through programs and tools; 2) Experimentation, aiming at the acquisition of new knowledge; 3) Learning through past experiences; 4) Learning through integration with other organizations (Benchmarking); 5) Internal knowledge transfer; and 6) Measurement of the learning process.

The organizational learning process integrates three levels: individual, group and organization.

2.6 Quality Assessment

When evaluating quality management systems, four basic questions should be asked regarding the cause of the processes being evaluated: a) Is the process identified and appropriately defined? b) Are the responsibilities assigned? c) Are the procedures implemented and maintained? d) Is the process effective in achieving the required results?

The answers to these questions may determine the result of the assessment.

2.7 Audits

Quality Management System (QMS) auditing is an important management tool used to improve business performance through objective, systematic and periodic assessments and is a key step in the certification process. It is used to monitor and evaluate system effectiveness, identify opportunities for improvement, and thereby mitigate the risks associated with the survival of organizations. Poksinska et al. (2006) show that certification auditing can be a tool to ensure the effectiveness and continuous improvement of QMS.

According to Beckmerhagen (2004), the word audit was never accompanied by a broadly positive connotation, although the process, when well done, has benefits for the management of an organization. The criticism of the process, according to Kaziliunas (2008) is that the vast majority of audits are only to produce data to issue a certificate, to improve the documentation or to enforce conformity.

The fact is that quality auditing alone does not guarantee the quality of products and services, but their

contribution to this is undeniable since the improvement actions are based on facts from quality auditing. However, the audit alerts the organization of the need to review, update and improve its production processes. But when the problem is treated ineffectively, it can be repeated indefinitely until it contaminates the productive capacity or at least its customer concept about the organization.

It is important to highlight that the organization must take responsibility for the critical analysis of nonconformities, identifying their causes to finally correct this actions that may compromise their ability to provide a good service.

2.8 Correction Plans

ISO 9001: 2008 determined that an organization should take corrective actions to eliminate the causes of nonconformities, detected by employees and/or auditors and also by parties' manifestations to avoid their repetition. Corrective actions shall be appropriate to the effects of nonconformities detected and a documented procedure should be established to define the requirements for:

- Critical analysis of nonconformities
- Determination of causes of nonconformities
- Evaluating the need for action to ensure its non-repetition
- Determination and implementation of necessary actions.
- Record of results of actions taken
- Critical analysis of corrective actions taken

2.9 Standardization

Process standardization is one of the elements that compose QMS. According to Silva, Duarte and Oliveira (2004), standardization allows the company to offer products and/or services with constant characteristics, that is, with the same quality standard, satisfying customer requirements.

Thus, standardization aims to ensure the execution of processes always in the same way to obtain greater predictability of results. It is used to control, predict and minimize nonconformities (TEIXEIRA, 2013).

Process standardization, for Münstermann, Eckhardt and Weitzel (2010) is conceptualized as the degree to which procedures are formalized and followed. Quality of service or product requires consistency in business processes. This consistency is made possible through the standardization of processes (UNGAN, 2006).

With the standardization of processes, the production and services become more effective, thus contributing to increased efficiency of processes and activities (MÜNSTERMANN; ECKHARDT; WEITZEL, 2010).

Some authors (UNGAN, 2006; MÜNSTERMANN; ECKHARDT; WEITZEL, 2010) reinforce that process standardization has a positive effect on service quality, as it contributes to reducing uncertainty and process variability. Besides, developing standards contributes to increased operational performance by eliminating errors, reducing costs and facilitating communication (BEIMBORN et al., 2009).

Ungan (2006) analyzed that the standardization of products, components, and processes, contributes to the creation of new products; development of problem-solving approaches; reduction in the number of components and activities; in addition to reducing storage and transportation costs.

Jayaram, Vickery and Droge (2000) reinforce that process standardization is an important variable for

supply chain performance, mentioning gains in Lead Time manufacturing performance, speed of delivery and customer responsiveness.

However, it is important to note that simply imposing a standard for the workers will not create a sense of responsibility for the activity. The workers need to be involved in setting the standard, explaining to them the goals and potential results. Thus, avoiding treating the laborers as a mere substitute for a machine and prioritizing participatory management, there will be much less resistance to change and, therefore, the chances of success of the standardization process will increase considerably (TEIXEIRA, 2013).

Process standardization occurs mainly through formal documentation. It is information in the form of text or graphics, aiming to clarify the relationships between activities, employees, information, and objectives in a given workflow (UNGAN, 2006).

2.10 Leadership

Leaders establish unity of purpose and direction of the organization. They should create and maintain an internal environment in which people can be fully involved in achieving the organization's objectives (ISO 9001: 2008).

Hersey and Blanchard (2007) define leadership as the process of influencing the activities of individuals or groups to achieve a goal in a situation. One definition of leadership that captures the essence of its characteristics is that of Weathersby (1999), for whom leadership focuses on creating a common vision. It means motivating people to contribute to the vision and encouraging them to align their interests with those of the organization.

When addressing the leadership theme, many aspects can be considered, related to the skills that the leaders must demonstrate, or the style that the leader can adapt in function of the focus given to their activities, more in the processes or more in the people involved. Emphasis can also be placed on the role of the leader, what is expected of him, and how he positions himself in this regard. All these possibilities will act within an environment, or situation, influencing the way leadership is exercised (GONÇALVES, 2011).

Gonçalves (2011) adds that the leadership style that a manager must use to influence an individual or team will depend on their level of maturity. Maturity can be defined as the ability and willingness of people to take responsibility for directing their behavior.

However, if the leaders do not disseminate important values to the team, such as those contained in their quality policy, the leaders will inevitably assume the role of disengagement from the quality aspects.

Leadership should provide evidence of its commitment to the development and implementation of the quality system and continuous improvement (NBR ISO 9001: 2008).

2.11 Elements that prevent the correction of nonconformities

In the context of the most different standards that value quality, complying with its contents is not an easy task, especially when a nonconformity arises, because knowing how to treat it correctly is delicate work.

Although there is much discussion about the elimination of these factors, what is still constantly seen are companies that do not focus on reducing, eliminating and preventing their nonconformities.

ISO 9001:2008 conceptualizes non-compliance as non-compliance with a requirement (implicit or mandatory need or expectation). Hence arises one difficulty to define clearly what is nonconformity.

Because of this, some nonconformities are treated incorrectly.

Another related difficulty is linked to the financial aspect and some companies prefer to delay the solution of the problem and when a solution comes lately, often is necessary to change processes, which becomes expensive for the company, so they prefer not to change the situation.

It is also noted the problem of limiting the issue of nonconformity to quality professionals, which cannot occur, since the understanding of the subject has to be on the part of all employees of the company, and not only of the quality sector.

Therefore, it is necessary not only to train, but also to follow and carry out constant recycling, and it cannot restrict the only sector the responsibility for the quality problems generated by the occurrence of nonconformities.

Although many companies are already improving their treatment of nonconformities, eliminating failures, redesigning processes, and training employees, there are still organizations that have major flaws in their procedures, especially having difficulties in recording and handling nonconformities.

So, one of the major causes for not solving the problem is the use of corrective actions instead of preventive actions. Corrective action is used to eliminate the cause of an identified nonconformity or undesirable situation (ABNT NBR ISO 9001:2008), and it must be performed to solve an immediate problem, learning with the experience.

Many companies are very advanced when it comes to containing nonconformities, due to market and statutory requirements, which make their processes robust to the point of not providing nonconformities.

On the other hand, some companies still neglect their nonconformities, pretending that they do not exist, resulting in record complaints, disrespecting their customers, competitors, regulatory bodies, often generating situations irreversible to humans, the environment and to public coffers.

3. Case Study

The Company X belongs to the petroleum derivatives logistics sector and is located in the industrial district of Manaus, located in Amazon state, Brazil.

In 2014, its facilities have been operating for 15 years and it had a staff of approximately 160 employees, distributed among Technicians, Engineers, Coordinators, and Managers.

The company's main customers are the petrochemical industry and the distribution companies that serve diesel consumption in the northern region.

The company's operating facilities are located in the private port area of the city of Manaus and operate with ships, ferries, and barges. It performs vessel berthing and unberthing services, measurement and sampling on oil and propane ships, in the receipt and storage of oil and oil products. The administrative facilities are at the company's base.

The activities developed, in summary, are administrative, operational, maintenance, safety, environment, health (SMS) and port security following the guidelines contained in the ISPS-Code (International Code for the Protection of Ships and Port Facilities).

Company facilities are periodically evaluated on internal and external audits, self-assessments, stakeholder satisfaction surveys, reviews, etc.

Quality and SGI audits indicate that the company faces many obstacles in treating its NCs. The area most affected by the problem studied is the Administrative Services (AS) area, which is responsible for administrative and logistic support contracts (automobiles, speedboats, Industrial kitchens, and Container leasing). The sector consists of 15 people, including administration technicians, Coordinator, and Regional Manager.

In other sectors, equivalent problems were seen, however, to a lesser extent. Audit reports show that SA has the largest number of repeat NCs and other RTAs terminated with palliative measures only.

3.1 The software SIGA – Integrated Anomaly Management System

In the organization under study, the SIGA system is used to assist in the management of anomalies.

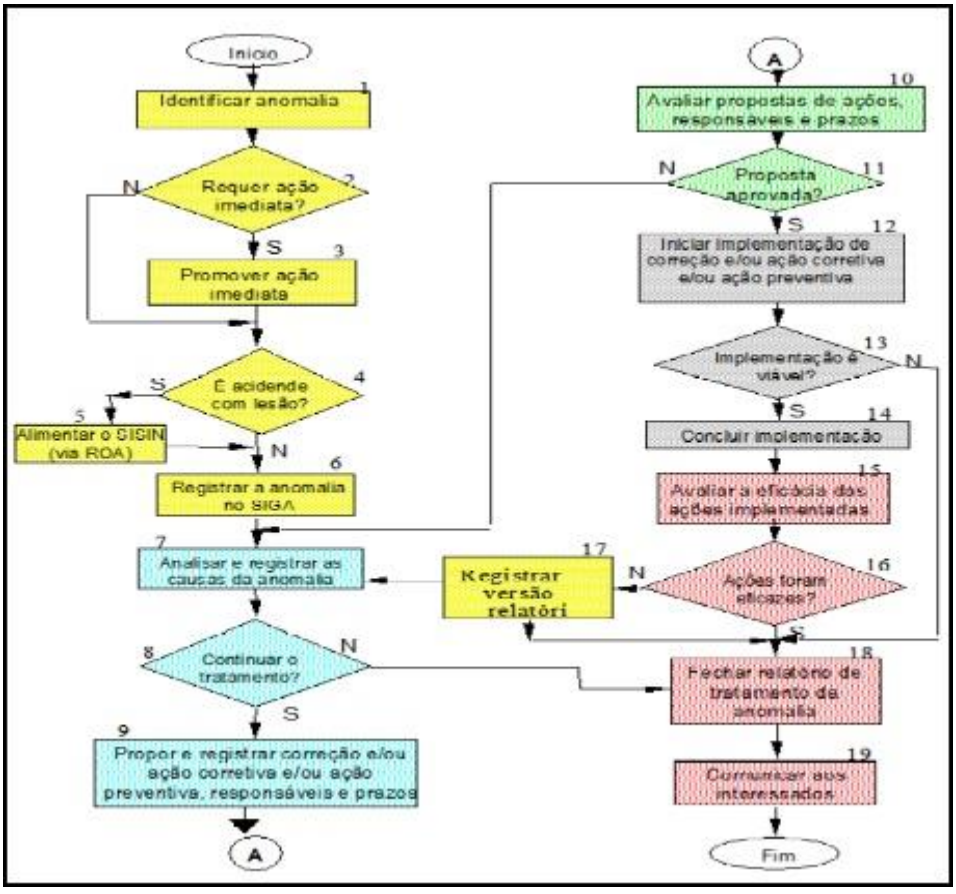

Figure 1 – Anomaly treatment process adopted by the organization under study.
Source: Company X

This software was developed by the organization, being customized to the needs of the company. The main items registered in this system are:

• Register anomaly, including the mandatory completion of the correction field;

• Analyze anomaly and the facts associated with its occurrence to identify the underlying cause;

• Establish corrective actions, define responsible for their implementation and reasonable deadlines for the actions to be implemented;

• Approve or disapprove analysis performed and proposed actions, responsible and deadlines presented;

• Establish a deadline for verification of effectiveness and complete implementation phase;
• Evaluate the effectiveness of the treatment performed and terminate the RTA.

Figure 1 shows a flowchart of the anomaly treatment process provided for in the organization's internal procedure.

4. Methodology

The research is applied and a case study, using some quality tools to identify the root causes of problems and meetings with the leadership and workforce.

Basically, after the choice of the theme "Causes of non-treatment of nonconformities in a company of the Manaus Industrial Pole," an applied and descriptive research was carried out to seek information regarding the theme and its components, as well as the identification of contributing factors for the non-effective treatment of NCs.

The study was developed based on current concepts on quality management and analyzed on the perspective and proactive vision of NC treatment as a way to stay in the current competitive market.

It was necessary to perform a literature review, using articles from the area of Industrial Engineering, which allowed an understanding of the causes for non-treatment of nonconformities.

Data collection was performed during March 2014 and the chosen place was the base of the company in question. Two meetings were held, one at the company's operational safety department and the other at the base auditorium. The first meeting was attended by the Operational Safety Coordinator, a Safety and Environment Engineer, an Integrated Management System professional, an Administration Technician, and a Safety Technician. All present act directly in the process and use the tools provided by the company for problem management. The second meeting had a larger number of employees. It was held in the auditorium of the company. There were on average 25 employees from the 13 sectors that compose the company.

The premises of the company's administrative bases are small and therefore gathering this number of employees was relatively easy. Present were Administration Technicians, Maintenance Technicians, Environmental Technicians, Operation Technicians, Occupational Safety Technicians, Labor Nurse, Accounting Technician, ICT Technician, Administrative Services Coordinator, Support and Works Coordinator, Maintenance Coordinator, SGI Professional, Operations Supervisor, Mechanical Engineer, and Electrical Engineer. All areas have been heard, as the appropriation, investigation, and treatment of NC are in the area where the failure was detected and it is the area's responsibility to follow the anomaly treatment standard of the RTA (Anomaly Treatment Report) registration on SIGA at closure, with verification of effectiveness.

The data collection and analysis instruments used were in loco observation, the use of Ishikawa diagram and brainstorming, analysis of documents, procedures, and standards related to the anomaly treatment process.

5. Results

5.1 Identification of Causes

To identify the causes of noncompliance treatment was held in March 2014, two meetings, the first common

small group of four people and another meeting with a larger group of 25 people. All employees present work directly in the anomaly treatment process and have or already have RTAs under their concerns.

Figure 2 – Causes of recurrence of a NC concerning Labor Category
Source: Author

This data collection to obtain as causes of problems studied were made with the representatives of the Administrative Services, Monitoring, and Results Control, Maintenance, Inspection, Engineering Support, Operational Safety, Health, Environment, Human Resources, Operation, Information and Communication Technology (ICT), Institutional Communication areas and Management.

To help identify possible causes that cause unwanted return (conformity effect), brainstorming and the Ishikawa diagram were used at both meetings, with a survey of the possible causes that cause or ineffective the treatment of NCs identified in the company.

The causes of the recurrence of a NC (Figure 2), mostly belong to the category labor, such as: failure to register, failure to analyze the root cause, failure to define corrective and preventive actions, failure to define deadlines, weak communication and scope, failure to implement actions, failure to approve actions, failure to verify the effectiveness of actions implemented.

The other causes identified were in the machine category, such as integration failure between the SIGA and ABRA (Coverage System) systems. The slowness of the systems, caused by the low ICT infrastructure that serves the company, was also cited as a critical point in using the SIGA system to treat RTAs.

In the Measurement category, was mentioned the failure of external audits that often present unrealistic

results and aimed only at maintaining certification. Failures were also noted in the periodicity of self-assessments that only precede external audits as a form of preparation.

In the Method category, there was no fault identification. In the Environment and Raw Material category, there was no applicability.

This assessment already presents the need for better management of the human resources that collaborate for the treatment of NCs, and effective management, in terms of capacity building and awareness, would avoid that most of the problems related to the ineffectiveness of the same treatment failure or others were caused.

In the organization, after data collection, it was noted that the most critical area of the steps that focus on the treatment of nonconformity (provided in the internal management standard), is the analysis of failures. For Martins and Laugeni (2005) failure analysis is a technique used to prevent or to analyze nonconformities in projects, processes, and products. According to these authors, in a more preventive view, a methodology should take into account seven phases: Phase 1) Specification of the problem; Phase 2) Determination of hypotheses of causes; Phase 3) Verification of the hypotheses with the specification of the problem; Phase 4) Analysis of existing controls that prevent the occurrence of failures; Phase 5) Evaluation of occurrence rates, severity detection and risk of failures; Phase 6) Development of corrective and preventive actions; Phase 7) Monitoring the implementation of measures to prevent failures.

Alvarez (2002) also considers the existence of different methodologies for fault identification and treatment. However, for this author in organizations, it is not common to apply such methodologies since most of them live with a culture of "put out a fire". In his analysis, the author points out that there is no better method of failure analysis, and consensus among the methods is the identification of the root causes. What the author highlights are the fundamental difference in approach where one method is best suited for simpler problems or failures and others whose approach is more focused on problems that are more complex.

Campos (2011) argues that in structuring a failure analysis system each organization should develop its approach model so that it becomes a culture and organizational value. The author points out that a good failure approach system presupposes the existence of a sequential process that allows good conduction of analyzes, as well as the application of analytical tools for the simplest cases whose root cause, is easily identifiable. It also considers the need to combine a specific analysis process and tools for the most complex cases, in which teams, due to the complexity of the fact, elaborate the development of the critical analysis process.

This fact reinforces the understanding that it is necessary to enable teams to fully develop their functions. The company has a system of treatment of nonconformities well defined in internal procedures of management and execution. Besides, it has an integrated non-compliance management system that works by alerting those responsible for meeting deadlines and if the deadline is due, the pending alert extends to the immediate sector of the employee. However, the training sessions were insufficient and did not attend all the teams. Which left a gap in the process as a whole.

5.2 Action Plan Proposed

Taking as reference the amount of insufficient training as one of the main causes of non-treatment of NC,

the following action plan based on the 5W2H technique was proposed (Chart 1). This action plan provides the training necessary to qualify employees to identify and analyze nonconformities and establish action plans using the appropriate tools to solve problems and continually improve their Quality Management system. The same was built from research and the author's perception, with the contribution of the company's SGI professional.

What?	Why?	Where?	When?	Who?	How?	How much?
Planning the class for training	All area managers will appoint representatives to receive NC treatment training	Training room	April, 2014	Sector Coordinators	Indication of names through internal document.	-
Conducting training with teams on anomaly treatment standard	Know and attend the anomaly treatment system.	Training room	April, 2014	SGI Professional	Use of datashow with slide show about standard. Opening of the standard in SINPEP.	-
Integrated Anomaly Treatment System Training (SIGA)	Regional Manager of SIGA.	Training room	April, 2014	SGI Professional	Use of datashow with slide show about the system. Computer use by student for system simulation.	-
Training about abrangências system	Regional Manager of ABRA	Training room	April, 2014	SGI Professional	Use of datashow with slide show about the system. Computer use by student for system simulation.	-
Concepts and definitions related to Nonconformities and Corrective Actions	Empower employees to identify and analyze Nonconformities and establish Action Plans using appropriate tools to solve problems and continually improve their Quality Management system.	Training room	May, 2014	Hired company.	Use of handouts, teaching materials, data show and sharpener.	Contracting costs of the company to training.
Related Regulatory Requirements Overview (ISO 9001)		Training room	May, 2014	Hired company.		Contracting costs of the company to training.
Identification of Nonconformities		Training	May,	Hired		Contracting costs of the

		room	2014	company.		company to training.
Types and Classification of Nonconformities		Training room	May, 2014	Hired company.		Contracting costs of the company to training.
Awareness and Responsabilities		Training room	May, 2014	Hired company.		Contracting costs of the company to training.
Describing Nonconformities		Training room	May, 2014	Hired company.		Contracting costs of the company to training.
Nonconformity Treatment		Training room	May, 2014	Hired company.		Contracting costs of the company to training.
Troubleshooting Techniques		Training room	May, 2014	Hired company.		Contracting costs of the company to training.
The basic troubleshooting tools: Cause and Effect Diagram (Ishikawa); Pareto Diagram, Brainstorming, etc.		Training room	May, 2014	Hired company.		Contracting costs of the company to training.
Corrective Actions Evaluation		Training room	May, 2014	Hired company.		Contracting costs of the company to training.
Examples, Exercises and Applications		Training room	May, 2014	Hired company.		Contracting costs of the company to training.

Chart 1 – Presentation of the Action Plan to combat Insufficient Training

Source: Author

6. Final Considerations

This paper aims to identify the causes that lead to the effective non-treatment of nonconformities in a company of the Manaus Industrial Pole (PIM), in order to propose an action plan to reduce the undesirable

effects arising from the ineffective treatment.

The procedures and the computerized system adopted by the company for the management and treatment of its failures were evaluated and no significant failures that could be part of this study were found.

However, the main faults detected were in the labor category, which showed that the teams did not have the knowledge and skills needed to handle nonconformities. It was asked during the meetings whether the failures in the other categories were corrected, whether the problem would persist or be blocked. The answer to that question was that the big problem is that the company has invested heavily in employee training in the past, but with the optimization and reduction of operating costs program that was established more than three years ago, training has been reduced and prioritized only those of Safety, Environment and Health (SMS). Many new employees were admitted to the company, and most attending the meeting did not recall the last time they received training related to anomaly management.

It is important to point out that the company faces problems mainly in the analysis of the root cause since several times it was seen the absence of a tool that would help in investigating it. This flaw was found in most filtered anomaly treatment reports in the system. This evidences the superficial treatment, since the other steps, such as the implemented actions are strongly linked to the study of the root cause.

Even with specific implementation and management procedures within the organization, computerized systems, adequate infrastructure if there is no motivation among employees, awareness, and training, effective controls, periodically established measurements or committed to demonstrating the reality of the organization. In addition to leadership that is little committed to quality management in processes and services, the organization will inevitably fail to score on efficiency and productivity. Therefore, the human factor is reinforced as the essence of any management system.

As suggestion, an action plan was proposed to assist in the training of its employees. Follow-up on the implementation of this plan will support the organization to seek continuous improvement of its processes, following the awareness of its employees, as well as the use of a system to control failures.

Further research could be done to identify the impact of this action plan implementation on the reduction of causes related with non-treatment of nonconformities.

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