Operator Care

LESSONS FROM THE FRONT LINES OF THE OPERATOR CARE PROGRAM

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Abstract

Employee engagement is the holy grail for any organization, and the Operator Care Process establishes this engagement within the Operations population with a focus on Asset Reliability. While known by many different names (including Autonomous Maintenance, Routine Equipment Care, and Operator Driven Reliability), the Operator Care Process presents a simple set of tools that can become the centerpiece of any asset reliability initiative or Total Productive Maintenance (TPM) effort.

The strength of the process lies in its immediate application of lessons learned. This paper will provide insight into the lessons learned during global implementations of the Operator Care Program within several multinational corporations. It is interesting to note that these lessons apply across every border and culture, as the needs and drivers for people working in an industrial setting tend to be similar regardless of the location.

This paper will focus on the following three (3) lessons learned:

> *Ownership:* Given a limited amount of direction and facilitation, teams of operators and maintenance personnel are capable of exploring common failure data and developing the required inspection standards for their area. The exploration process provides a valuable learning and team building moment.
>
> *Continuous Learning:* Leveraging the most experienced personnel in the area to share their skill and knowledge using One Point Lessons institutionalizes this learning. Our experience shows that this learning is most effective when it is applied continually in small doses, facilitating continual incremental improvement of the Operator Care Program.
>
> *Accountability Integrated into the Program:* We have found that this can be addressed through simple, regularly scheduled, and formal audits performed on the program with the feedback to the Operator Care team being active and visible.

Over the course of this paper, we will explain these three (3) lessons learned and provide real-world examples from the front line, as well as practical advice on incorporating these practices into your own program.

KEYWORDS: Operator Care, Autonomous Maintenance, Engagement, Maintenance and Operations Partnership, Accountability, One Point Lessons, Continuous Learning

Introduction

This paper provides an in-depth look at three (3) simple lessons learned from past implementations of Operator Care Programs within multinational corporations. These lessons are practical in nature and will be valuable to others attempting to implement their own programs. These simple lessons learned are:

- Lesson 1: Ownership
- Lesson 2: Continuous Learning and Continuous Improvement
- Lesson 3: Support and Accountability

In addition, real examples of the challenges faced and the methods leveraged to overcome them will be presented.

Lesson 1: Ownership

Ownership is the critical success factor in building a sustainable Operator Care Program. If the people involved in the Operator Care Program (operators, maintenance, supervision) do not feel like they have a voice in the development of this process, they will at best comply and at worst lose total interest in participating. Our experience has shown that the worst possible approach is to present the team with a pre-packaged set of answers to their performance problems. We have found that it is preferable to place the teams in a structured environment where they are presented with the training, tools, and process that will allow them to discover and develop the answers themselves, not only today but well into the future.

To this end, we have used an interactive session where the Operator Care Team is placed in just such an environment – one where they are given the necessary amount of training and skill building and immediately tasked with establishing the beginning of their program within their assigned Operator Care area. Many refer to these events as "training sessions" as it is easier for them to conceptualize the idea of training; however, we prefer to refer to the events as "interactive workshops". The difference is subtle, but still an important one.
We train our workshop facilitators for the Operator Care process to strive for input and engagement from the audience, which helps build the foundation for ownership of the program. In most cases, the facilitator learns as much about the people in the area and the challenges that they face as the participants learn about the Operator Care process. More than a technical exercise, these sessions are about the people, learning about the challenges that they must deal with on a daily basis and providing them with a set of tools that allows them to solve their own problems as a team. In addition, to intimate process knowledge, we expect our facilitators to possess the skills necessary to drive open conversation and team-based decision making. These sessions are very different from the traditional classroom lectures many are familiar with.

The interactive workshops that we facilitate to begin the program in a particular Operator Care area are generally 3-5 days in length, depending on the size of the area and the complexity of the assets. The goal of the robust agenda is to establish the beginnings of a sustainable process in the area and to guide the team to accept ownership and strive for continuous improvement as they learn and grow as a team. Several key areas of interest from the workshop agenda are described in more detail in the following sections.

Communication – Often and with Clarity

As is the case with any change undertaken by an organization, if we fail to communicate our intentions with the affected people, they will develop their own ideas about the changes that are coming. In these situations, it is human nature to assume the worst about the process, thus establishing unnecessary challenges that can be easily overcome with communication.

In order to limit these "challenges of perception", we prefer to execute a communication campaign a minimum of 60 days prior to the first implementation workshop within a facility. This campaign consists of a leadership session in which we gather the leaders from the affected areas (general manager, superintendents, and supervisors) and establish clear expectations for the Operator Care process, an implementation timeline, and the necessary business system elements that will ensure long-term success. One of the important outputs from this leadership session is a clear set of roles and responsibilities for the process, communicated in the form of a RACI chart (Responsible, Accountable, Consulted, Informed). Development of this level of agreement within the organization provides us with the ability to subsequently communicate with the affected operators and maintenance personnel with clarity

about the change that will occur. We are able to describe to them the personal expectations and their future roles in the process.

Following the leadership session, we meet with groups of operators and maintenance personnel in brief "stand-up" sessions where we discuss the Operator Care process and, most importantly, how their roles will change in the future. We tend to focus on the positive benefits of the process and dispel any rumors that may have developed in their minds. We find that it is equally important to explain what "will not change" as well as what "will change". These sessions are an important first step in developing the ownership that we hope to see at the core of the Operator Care process.

Upon establishing the process in a single area within a facility, it is beneficial to use that initial Operator Care area as an internal reference for subsequent workshops. We will take new Operator Care teams for a tour of these areas and ask members from the functioning areas to attend the workshops to make a presentation with regards to the effects of the Operator Care Program and how it has affected their productivity.

As we implement this process across the globe, we leverage these initial communication sessions as a means to gauge the local cultural demands and organizational norms that may prove to be challenges later in the process. Success has been achieved through careful, clear, and concise communication on what we are trying to achieve and, most importantly, careful listening to the concerns of those who will be affected. It has become clear to us that despite the cultural differences we have experienced, people are very similar at the heart of things, with similar motivations and desires. It is incumbent upon those tasked with implanting these processes to ensure that active two-way communication occurs; listening is more important than talking in most cases.

It has been our experience that you can never communicate too much about this process. The void that is left due to lack of communication will be filled with rumors and misinformation. This can easily be offset with a well-developed and executed communication plan.

Defects vs. Failures

It has been interesting for us to learn how little most people understand regarding the difference between defects and equipment failures and how quickly they are able to embrace this type of thinking when presented with the concept. We typically start this discussion with a presentation of a simple P-F Curve and where the application of the five human senses (sight, touch, smell, hearing, and taste) employed in the Operator Care process fit on the curve.

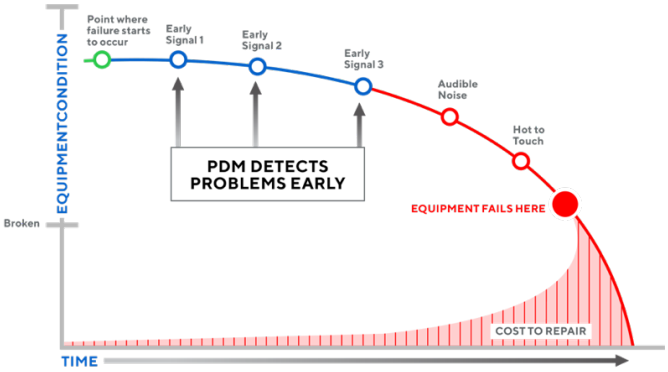


FIGURE 1: THE P-F CURVE

Team members quickly gain the understanding that a pump that is still rotating may be considered to be in a failed state, a motor that is making abnormal noise is very near failure, and what was once acceptable is no longer so. We follow up this discussion on defects with what we call a "process walk", where team members are asked to go out into their area armed with a clipboard and a camera and identify as many defects as possible in a two-hour period. We ask the teams to focus not only on equipment defects, but also issues such as safety hazards, workplace organization, lack of signage and labels, and cleanliness. It is interesting to watch the team at work with their new understanding and new ability to detect defects, identifying problems that they have walked by day-in and day-out without reporting them. More importantly, the Operator

Care teams immediately develop a competency towards early identification of problems where one did not previously exist.

Upon returning to the classroom/workshop, the teams prioritize their lists and determine if there are any issues existing that are severe enough that they must be addressed immediately. In the history of this process, we have yet to come across a single Operator Care area where there was not at least one problem that we deemed important enough to have it addressed immediately before we go home for the day. These problems are generally safety-related (missing guards, electrical hazards, trip hazards, etc.), but on occasion, we have found conditions that would likely lead to a catastrophic loss of production. Again, the real benefit here is not the list of problems identified, but rather the team's development of a skill set that includes the prioritization of problems and an understanding that some defects must be addressed immediately while some can wait for a more appropriate time.

Focus on Results

A common problem that occurs if the facilitator does not step in and correct the behavior is the belief that if some activity is good, more is even better. In the early stages of this process, we were not as astute at heading off this problem and ended up with some oversized inspection lists and teams that were carrying out the inspection process without truly understanding why they were doing it. Put simply, we had placed too high of a value on the size and complexity of the inspection, rather than focusing in on those activities that would produce the greatest results.

The correction we applied consisted of a simple focus on the results for the area: what did we accomplish today? What effect did we have on the business drivers? Where is the connection between my actions and the bottom line? Sadly, it is not all that uncommon to receive a set of blank stares when initially asking a group to place a numerical value on the difference between a good day and a bad day in their area. Many personnel working on the front line are missing that key link in understanding between their contribution and the results achieved in their area. We often make the analogy of a football team playing without knowing the score. How successful and how motivated can such a team be?

It is now our standard practice to reinforce these key measures of success early on in the agenda by visually posting them all over the classroom and verbally reinforcing them constantly throughout the workshop. These measures are generally linked to some derivation of the QCSDE model – Quality, Cost, Safety, Delivery (throughput and yield), and Environmental performance.

Whenever the team is developing a plan or is addressing a particular problem, we ask the question, "how does this affect what we agreed was important?" We have found that without this constant reinforcement, the teams try to solve every problem, no matter how distant it is from what we had previously agreed upon as important.

It would appear that the concept of prioritization and focus on the important few is not a natural human trait, but rather one that must be learned and practiced over time. Without this reinforcement, we have found that the teams tend to over-commit and lose steam as the weight of what they have agreed to bears down on them. They sometimes forget that they have operational duties in addition to the equipment care duties they are taking on and try to do too much. The most successful teams are those that carefully choose their activities and have leaders who understand and support this concept.

Standardized Inspections – by Operators for Operators

If you want to establish an Operator Inspection Program that will not sustain itself, it is an easy task; simply develop a list of items for the operators to inspect that you feel is important and deliver it to them. Programs such as this rarely survive as they have severely missed the boat on the concept of

acceptance and ownership. We must start with an end state in mind (increased throughput for example) and lead the operators to employ the tools of the process to achieve this objective.

We find that the process of identifying defects, assigning priorities, and developing standardized inspection criteria is best accomplished by the operators themselves, with technical assistance being provided by others. Our experience shows that the key to long-lasting success is the facilitation of the development of these standards by teams of operators and maintenance personnel working in a collaborative manner, exploring ideas, negotiating priorities, and making commitments for the future.

A second important idea with regards to these standardized inspection routes is the concept that standardized inspections are those that are specific and quantitative. Often, we start this process with some semblance of an operator checklist, but that is usually just a simple listing of equipment to be checked with no specific criteria for performing these inspections. We refer to these non-specific inspections as subjective, meaning that the actual health of the asset is a subjective matter, relying on specific expertise and knowledge being possessed by the inspector. A quantitative measure is one that is repeatable, time and time again, regardless of who performs the inspection. A comparison between subjective and quantitative inspection criteria is provided in Figure 2.

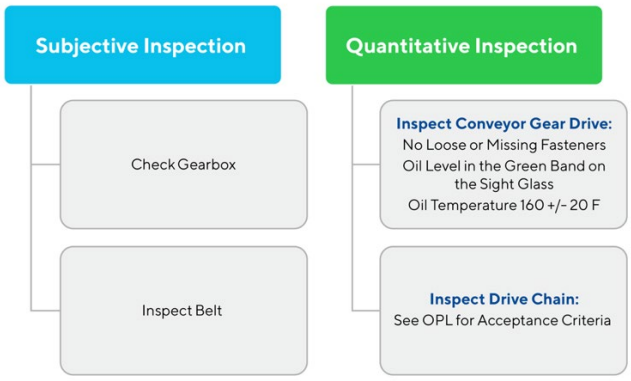


FIGURE 2: SUBJECTIVE VS. QUANTITATIVE INSPECTION CRITERIA

We have found it extremely beneficial to discuss this at great lengths with the Operator Care teams and insist that they clearly define what is acceptable and what is not using quantitative criteria. This can present a challenge at times. When measuring something such as temperature, pressure, or level, a simple numerical value with an acceptable range can be assigned and then reinforced with visual controls. When performing a hose or belt inspection, establishing clear quantitative criteria proves to be challenging. We often strive to use words to define these acceptable and unacceptable conditions, but when this proves to be a fruitless effort, we fall back on the use of photographs and the One Point Lessons described later in this paper to reinforce our communication.

When developing these inspections, we attempt to incorporate much more than simple inspection and reporting of defects and strive to leverage the acronym CLAIR into the process (Table 1).

The first three letters (C, L, and A) help us standardize those activities that prevent the defects from being induced in the first place. The last three (A, I, and R) help us identify and address defects in a timely manner.

TABLE 1: EXPLANATION OF CLAIR	
C	Clean
L	Lubricate
A	Adjust
I	Inspect
R	Repair (Minor)

It is important to note that we expect that the nature and complexity of these activities will increase over time (within limitations) as the skill and knowledge of the operators are improved through the application of One Point Lessons and the continual learning that is inherent to the process.

By way of example, if our operators are currently not capable of refilling an air-line lubricator, we can eventually train them so that one day they can accomplish this task, while we will never likely see them replacing an input/output card on a PLC. The tasks that they are asked to perform are a function of what they are able to learn and perform safely, in addition to their operational task assignments.

Lesson 2: Continuous Learning and Improvement

An important concept that we strive to leave our teams with is the idea of continuous improvement. We challenge them to forgo trying to get it perfect today, but rather to try to get it good enough and continually improve upon what we have developed. We ask the teams to project three (3) months into the future and to try to predict what their inspection criteria will look like relative to what they have developed today. We all agree that if they look exactly the same, unchanged from the criteria we have developed in the workshop, we are left with little choice but to claim either "perfection on the first attempt" or admit that we have lost our focus on continuous improvement and, more importantly, on continual learning.

To this end, we ask our teams to place themselves in the position of a team of scientists, whose experiment is to find the way to maximize the performance of their assigned area, in keeping with the focus on the results concept. As a team of scientists would, we ask our team to carry out their experiment in a standardized fashion, all performing the same inspections and addressing defects in the same fashion.

As they execute this experiment, we ask them to analyse the results that they have achieved and make the necessary modifications to their approach in order to achieve positive results. We find that our most successful teams do just exactly that which we ask of them: to strive to continually learn from their equipment and the problems that they experience, while making continual modifications to the standardized inspections that they perform.

Continual Learning Through One Point Lessons

An important tool available to our teams, which facilitates continuous learning, is the One Point Lesson. Through the use of One Point Lessons, the teams are able to continually add to the body of knowledge possessed by the team, addressing shortcomings in a timely manner.

The rules regarding One Point Lessons are simple:

- Never more than a single page
- Never more than a single thought
- More pictures and less words
- Describe the consequences whenever possible
- Be creative

We have found that our teams quickly latch on to the One Point Lesson as a means of communication of simple ideas to address simple problems. Whenever the team finds themselves in a situation where they are thinking, "if only the operators would…", the One Point Lesson provides them with the means to communicate these simple ideas in a clear and concise manner, just in time and to the point. An example of a One Point Lesson regarding a visual inspection of a belt is provided in Figure 3.

ONE POINT LESSON
Area: Case Sealer Room

Title: POP UP BELT INSPECTION

It is very important to check the condition of the pop up belts prior to startup.

If a belt breaks during a production run, then jam ups will occur which will lead to lower production.

GOOD

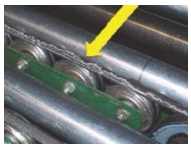
If you notice a bad belt, call maintenance or your supervisor and have it replaced right away. An example of a good and bad belt is provided to the right.	**BAD** 

FIGURE 3: ONE POINT LESSON

Each team centralizes their communication efforts through the use of an Operator Care Board mounted in their area. This board contains the One Point Lessons, standardized inspections, graphs of their current performance, and abnormality tags, as well as other information that is critical to the operator's performance. The use of these boards supplements the visual management aspect of the program, allows for an easy check of the team's progress, and facilitates communication among team members.

When the teams communicate ideas with their teammates, we ask them to focus on the idea of active versus passive communication. Too often, we find passive communication serving as the sole means of communicating important ideas: emailing the weekly performance data or posting an important inspection standard on a folder deep within a shared network drive.

We ask our teams to post these ideas visually on their Operator Care Board and take the time (usually 10 minutes or less) to gather the team around the board to have an open and active discussion. We find that those teams that embrace the idea of active communication and realize that the solutions to the majority of our equipment-related problems are really human communication problems are inherently more successful. By way of contrast, those teams that attempt to communicate via email or by simply attaching a poster on the wall are less successful.

As this process has evolved, we have found it necessary to institutionalize this weekly 10-minute meeting, with the supervisors in each area being assigned the responsibility of gathering the team and facilitating the discussion. Performance of this weekly discussion is one of the criteria that we include in our formal audit process.

LESSON 3: SUPPORT AND ACCOUNTABILITY

When it comes to building lasting organizational changes, the axiom "if you build it, they will come" could not be less true. Our experience shows that programs of this nature last precisely as long as we as leaders expect them to, and when we stop showing support or talking about them, they go away as quickly as they came into being.

We have found that this can be avoided through simple, regularly scheduled, and formal audits performed on the program with the feedback to the Operator Care team being active and visible. The teams are required to actively discuss the results from these audits during their weekly 10-minute meeting at the Operator Care Board and react to the feedback accordingly.

We attempt to keep the feedback from these audits standardized and simple. We find that if we nudge the team in the right direction (more abnormality tags, improve the workplace organization, great job on the inspections), they tend to react in an appropriate manner and incrementally improve their performance.

It is an easy task to see which teams have fully embraced the process and which ones have not. A short trip to the Operator Care Board tells the whole story; out-dated information, a shortage of abnormality tags, and unperformed inspections persist in those areas where audits are not performed.

In those areas where feedback is provided, we generally do not see perfection, but rather a team that is applying itself and getting a little better each month. Backsliding is normal in any process, but those leaders who provide feedback in the form of audits will see much shallower (and temporary) dips

in performance, rather than the slow creeping fall into a failed process.

FIGURE 4: ACTIVE COMMUNICATION AT THE OPERATOR CARE BOARD

Conclusion and Results

While still relatively early in our global implementation process, we are appreciative of the lessons we have learned early on and strive to find ways to improve our methodology. As we continue to learn, one central theme seems to prevail: the solution to a successful implementation of an Operator Care Program seems to be less in the technical and more in the interpersonal communication.

We are continually surprised and amazed at the ingenuity and technical knowledge possessed by our employees. We consider our Operator Care Program less a set of activities to be performed and more a means of engaging the hearts, minds, and skills of our employees who have often never had any real avenue for expression. The talent has always been there, but we as leaders have previously been inadequate at harnessing it.

Culturally, we see a change in the communication that occurs across the organization. As a result of our efforts, we have begun to see people speak with more clarity when discussing issues, focusing on facts and data rather than vague generalities. We have also experienced a cultural shift that has provided many more leaders to the organization in the form of operators who are willing to accept the challenge. These leaders have always existed, but the organization was not prepared to accept and leverage them to their complete capability.

Each team has its own success stories, from thousands of dollars saved in avoiding equipment failures, elimination of existing safety hazards, or increased output from their area. The truth is that these initial improvements seem to be quite easy to achieve, as if gold were lying on the floor just waiting for someone to pick it up. While these are truly valuable and help to fund and perpetuate our global roll-out, we have found that true success flows from the engagement and ability to innovate what we have learned from the front-line employees.

About the Author

MIKE GEHLOFF has worked in the maintenance and reliability discipline for over 19 years with a wide range of experience both as a practitioner and a consultant. Mike's particular area of expertise lies within the social sciences related to the discipline, particularly in the operator care, work control, and management systems areas.

Mike started his career in the Naval Nuclear Power Program, where he eventually trained incoming candidates to the nuclear program. He is a Certified Maintenance and Reliability Professional (CMRP), as well as a Certified Plant Maintenance Manager (CPMM). Mike is also a Six Sigma Black Belt and earned a Master's of Business Administration from the University of Florida.

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