Process Time Reduction in Manufacturing Areas: Visual Valves Identification on Manufacturing Area

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Abstract

Time of production process and associate activities were evaluated for Media Prep manufacturing process on Juncos, P.R. The voice of the customer requested reduced time inspection process before, during and after batching preparative activities and process. DMAIC methodology was used to evaluate the production costs. Fishbone, Scatter, Grant Charts, and other tools were used to determine what was the possible cause of highest time associates take to find valves, and equipment in gray area, even though the valves are identified with its proper part number. Equipment and material identification were most probable causes. Improvements in procedures and identification tags were used to perform and established the new color code tags, based on the function and type of addition of the valves. Evaluated process and defined the color code for the valve and established a 5S in the gray area reduced time and cost, also process became more agile and effective.

Introduction

A continuous improvement project is an initiative that seeks the optimization of a product, a process, an area, or several of them within an organization. Extended execution time of visual inspections of valves and production tank lines during procedurally required beds to associates in the manufacturing area of building #6. The execution of this activity before, during, and after the manufacturing activities of a batch results in a delay to subsequent activities. The main cause of the time these visual inspections take is that the valves and lines of the tanks are not easy to identify visually. Each of these components has a unique identification number engraved on it, but at first glance they all look the same. To aggravate the situation, there are components that are not easily accessible, so it takes a little longer to get to them. This also gives way to human errors during the execution and documentation of the task since, due to the length of the process, many associates are exposed to the pressure of time to start other activities.

Background

This visual inspection came from a commitment established because high leaks observe in gray areas. During manufacturing media solutions with a particular product valve pressure increase and some leaks were observed during the validation phase, after adjusting pressure and flow rate, leaks were content, but as a prevention correction walkdown frequencies were implemented. These visual inspections are also performed by mechanics during the equipment maintenance process. The equipment identification will improve the activities during beginning, middle and end process, later the project is going to be leverage ton Preventive Maintenances for mechanics area.

Problem

Streamline the process of procedurally required beds for visual inspections of valves and production tank lines before, during, and after batch manufacturing activities. Reduce the incidence of human error during the task documentation process. Extend the improvement to maintenance activities. Reduce manpower cost rate per hour in the activity, with time reduction operational cost also reduce.

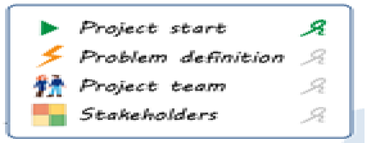
With the placement of a label or "tag" with a predetermined color code and the identification of each valve and line, it will be easier for the associate of the manufacturing area to identify them visually during the walks. This will streamline the process of visual inspection of valves and production tank lines before, during, and after a batch's manufacturing activities. By reducing task time, you will reduce pressure on the associate and be able to document more calmly by reducing the incidence of human error. This improvement will also help in the visual inspections carried out as part of the maintenance. Also, an impact in labor cost could be identified as a contribution.

Methodology

This project will apply the DMAIC (Define, Measure, Analyze, Improve, Control) methodology to improve the time, equipment identification and eliminate the non-value time in before, during and after inspections.

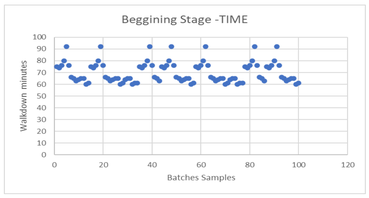
Results and Discussion

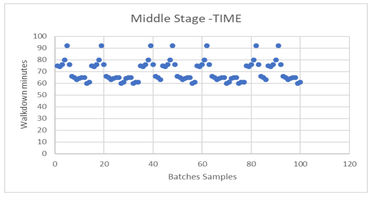
This project came from the need to improve the processes. A focus on a culture of continuous improvement in pharmaceutical environment.

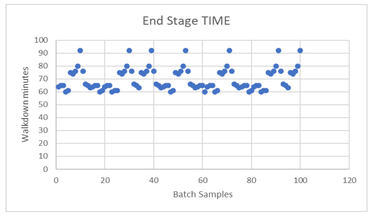


Excessive costs in the waste of time, associates task and manufacturing process areas were identified as a potential problem to be reduced using Lean Methodology and DMAIC approach.

A multidisciplinary team was selected to work with this project. The team consisted of one (1) Project Manager, three (2) Mechanics Department representatives, one (1) Operational Excellence representative, one (1) Capital Support representative, one (1) Quality Assurance Specialist, two (2) Associates Manufacturing. The team developed a project charter that presented the process problem, the process performing today, baseline, and performance after executing the process improvement.



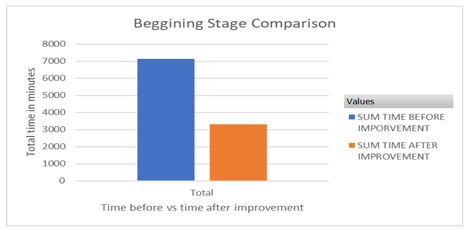


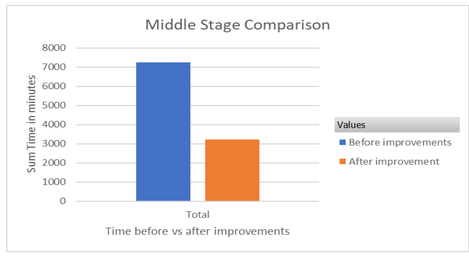


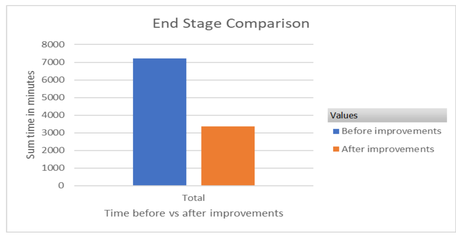
.As part of the evaluation process associates, and salaries were analyzed to see if there is any improvement in cost. The average salary for a manufacturing associate is $ 18.00 per hour. If we used two (2) manufacturing associates, in every process beginning, middle and end with an average between 60- 75 minutes, the salary rate of $54.00 per one and half hour.

The previous analysis and information were necessary to review the tasks in the frequencies, and the reason/purpose of the work assignment. This was performed through Gemba walks and interviewing the associates, media prep area but extended to mechanics, cell culture, buffer, and purification area.

In this phase the cause (s) of the problem are identified. Inputs that have a strong relationship with the outputs and root-causes were determined. During this exercise were evaluated material, method, valves, SOP, and management. The top offender of the current process that are identified as visual equipment identification, based on distinction, not the required identification by CFR regulations[1].







Conclusions

The main purpose of this phase is to control the improvements identified, keep the desired path. This phase promotes continuous improvement for a process.

Using DMAIC approach it was possible to reduce waste of time and improve associates' activities during media preparation.

A reduction from 60 -75 min to 30-45 min, includes the walk to gray area reduce the time to start or end the process and improve the good documentation practices. In the case of preventive maintenance, the time reduction forms 75-90 min to 45-60 min, this will increase the time to perform the PM and to document contemporaneous, clear and with calm, other areas and support areas are part of other project extending this one to those areas. This represents a reduction of hours released annually for the associates to perform other tasks.

Future Work

Even though the improvements were successful, and the expectations and goals fulfilled. The lessons learned, and opportunities to improve the batch process are:

- Extending program improvements Other Operations Areas (Cell Culture, Purification, Buffer, and Mechanics).
- Evaluate visual aids, or visualization tools for other process, for example color code folders per products for artifacts and related documents.

References

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