Blue Ridge Gatorade®

Lean / Six Sigma DMAIC Tools Enhance Blue Ridge Gatorade's Bottling Production

VPMEP
Solutions for a better way
in collaboration with Virginia Tech

SUCCESS STORY

Product:	Specializes in hot fill beverage packaging
Location:	Wytheville, VA
Employees:	300
Founded:	2005

The Company:

Officially opened in 2006, Blue Ridge Gatorade® (BRG) produces and distributes millions of cases of Gatorade®, Propel and other beverages each year. Finished bottles are conveyed off of multiple lines in this modern, LEED® Gold certified 950,000 square foot facility located in Wytheville, Virginia. Employing approximately 300 people, it is one of the largest manufacturers in the area.

Gatorade® Thirst Quencher was invented at The University of Florida to assist their athletes in combating the dehydration that limited their performance, which led to the brand name "Gatorade". It is the nation's leading sports drink, scientifically formulated to fuel athletic performance and backed by more than 40 years of research. The Gatorade® Company is a division of PepsiCo, Inc. (PEP), a Fortune 50 company that ranks among the world's five largest food and beverage companies.

The Problem:

As part of the TPM program already in place at BRG, management was looking for tools to deal with more difficult projects. Six Sigma was one of the tools considered. BRG sent representatives to attend a Lean / Six Sigma overview session at Merillat Industries (in Atkins, Virginia), conducted by the **Manufacturing Technology Center (MTC)** to evaluate the possibility of Six Sigma training for solving their more difficult projects. The response was very favorable and BRG contacted MTC to enroll students in their Six Sigma Green Belt training program. **MTC is a service delivery partner of a NIST-MEP affiliate in Virginia known as VPMEP.**

MTC MANUFACTURING TECHNOLOGY CENTER

The Response:

MTC conducted their 12 week Six Sigma Green Belt training program, which requires each student to complete a real project at their company while mentored by MTC Black Belts. The training covers all aspects of Six Sigma commensurate with Green Belt training. It consists of once a week 4 hour training sessions. Emphasis is placed on each student's specific projects and the application of the DMAIC methodology and tools. The tools acquired during training and most often used in the projects were: DMAIC methodology of problem solving, brainstorming techniques, Fishbone Diagram, analyzing data, SIPOC, and measurement system analysis.

Blue Ridge Gatorade® identified projects for each of its participants sent to the training. Two of the projects are outlined below:

Project 1: Bottles were being rejected due to label defects within a new product line using a new type of label. Project Leader Kevin French focused on bottle rejects reduction due to label defects - specifically label height. This defect represented 53% of all bottle rejects on one of the labelers (a total of 47% overall loss for both bottle labelers). Baseline DPMO = 11,834. The annual projected savings for fixing the problem was $400,000. This included reducing or eliminating the temporary labor that was required to manually inspect bottle rejects. One interesting point in this project was during the MSA. It was discovered that the current measurement system was not adequate and was in fact contributing to the high reject rate.

Project 2: Due to a new bottle design there was a significant increase in downed bottles on the line. Project Leader Garrett White's project was to reduce the number

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of downed bottles to improve overall efficiency and reduce temporary labor content. Of the top three losses on this line, 93.9% of the efficiency loss at the case packers was due to downed bottles. Baseline DPMO was 493. A target was set at DPMO = 123 (a 75% reduction). Reduction of this downtime would increase output and reduce and/or eliminate temporary labor devoted to "righting the bottles." This project required establishing a measurement system to deal with downed bottles and the location of where the defects were occurring.

The Results:

Summary of Kevin French's Project #1:

- Reduced DPMO to 1,394 (88.2% reduction)
- Case output increase of 3.6%
- Total savings $253,170 realized (elimination of temporary labor and increase in output)
- Reduction of other "related defects" numbers led to a 71% reduction of all defects (approx. 7 types identified)
- 83,631 less bottle rejects over 4 wk period when compared to baseline. Volume during this 4 week period was 14% higher than baseline.

Summary of Garrett White's Project #2:

- Reduced DPMO to 179 (73% reduction of downtime)
- Savings of $93,600 from eliminating temporary labor
- Increase of 23.4% output in cases
- Reduced downtime from 15,000 minutes to 4,000 minutes of downtime
- Total savings for a year was $128,450

Management's Comments:

"Working with the MTC for Six Sigma training has proven to be extremely beneficial in helping us solve some of our more complex issues. We have been able to utilize the Six Sigma DMAIC methodologies to drive process improvements, which has translated into increased efficiencies and cost avoidance. The training also helped develop the workforce providing new troubleshooting skills and analytical tools to the broader team. The bottom line is increased product availability and a better quality product for the consumer. I would highly recommend this training to any company who is struggling to solve reoccurring issues." **- Kevin French, Production Resource Leader**

"I wanted to let you know how successful the MTC SS training was for us. We used the DMAIC process for new and existing problems that had been challenging us for some time. The results were so good that we have identified additional employees to go through the MTC SS training. [It's] really a great process." **- Garrett White, Production Front Line Leader/Focused Improvement Pillar Lead**

"The SS course led by MTC has allowed us to further develop our employees with the cost savings tools that are critical to our future success. Six employees have been certified with their Green Belts, while four additional employees are finishing up the Green Belt Course. The tools these students have learned have led to an immediate impact for our company. While only ten employees have participated in the actual class, they developed teams of four to six additional employees who have become aware of the tools. The projects include eliminating product waste to improving TE (True Efficiency) initiatives to benefit the company. The employees gain the knowledge of the SS process, which makes them more marketable in a very competitive world. Thank you MTC, and I look forward to working with you on future projects." **- David Schappacher, TPM / Engineering Manager**

VPMEP field offices are located throughout Virginia. Partnerships with the Virginia Applied Technology and Professional Development Center (VATPDC) at Old Dominion University and the Manufacturing Technology Center (MTC) in Wytheville insure rapid response to your needs anywhere in the Commonwealth.
