Sustainability in a Bottle

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The system here is just phenomenal," says Graham Bailey, Plant Manager at Dr Pepper Snapple Group's Victorville facility. "From my experience in the beverage world, I can tell you — it's state-of-the-art. It's an honor to run a facility like this."

The facility took five years to plan and construct, and produced its first case on Feb. 24, 2010. It became fully operational in March of that year, and in its first month, the facility produced 100,000 cases. Production now tops two million cases per month and Dr Pepper Snapple expects that when the facility is running at full capacity, it will bottle up to 40 million cases each year.

The facility presently boasts five production lines, each operating independently from the others, with a fill time of 800 bottles per minute. The Victorville facility's primary production focus is on hot-fill juices and punches, such as Snapple, Hawaiian Punch, Motts, and Clamato, a tomato-and-clam juice beverage primarily targeted toward the Mexican market.

Production begins when a tanker brings apple juice and syrups to the facility and delivers them to the batching room, where the liquids are pumped into giant tanks. In the batching rooms, key ingredients are blended together and the mixture is sent to the bottling area, where water is added to the concentrate during the fill process on the bottling line.

Filled bottles are then sealed, checked for product quality, and labeled. Once bottles are labeled, they are packaged and robotically palletized into RFID-scannable loads and sent to the onsite distribution center and warehouse, which has storage capabilities for between 2.6 and 2.7 million cases of product. Since the facility serves as a western distribution hub for the beverage giant, some products not bottled at the Victorville facility are shipped to its warehouse and held for distribution to customers in the region.

Human Resources

Dr Pepper Snapple employs more than 200 workers to operate the highly automated production and distribution center. The facility also boasts a 400,000 square-foot shipping and distribution area attached directly to a 450,500 square-foot production and bottling area.

In building the Victorville facility, Dr Pepper Snapple closed two nearby facilities, as the new construction provides a better route to market for the company's West Coast customers.
This Dr Pepper Snapple facility places a premium on Lean manufacturing. The facility is Six Sigma-certified and has implemented a plan of Rapid Continuous Improvement. A key component to this strategy is that plant floor workers are empowered to make suggestions and take an active role in process improvement.

Since the facility is barely a year old, many of its employees are new to both the Victorville plant specifically, and to beverage production generally.

"Last year was what we called our 'school year,'" says Bailey. "We have a great team, but a lot of [the employees] had no beverage experience, so we spent some time teaching them how to use the equipment and what to watch out for."

Staff was hired before the facility opened, and they went through a rigorous training process, executed both on the line and in computer-based training courses. Even before all the processing lines were open, the entire staff was brought in to train and observe production. Dr Pepper Snapple's Victorville facility employs continuous training, and engineers still execute training courses on the line. Due to this comprehensive employee education program, in less than a year's time, line employees are already contributing to writing standard operating procedures.

The employees on the plant floor are now cross-trained for various jobs throughout the facility, allowing for simpler and more flexible scheduling. Additionally, this multi-function training gives line workers a holistic understanding of the process, better positioning them to provide process improvement feedback.

Consistency Is Key

Plant floor workers are specifically empowered to contribute to the facility's Hazard Analysis Critical Control Point (HACCP) planning. Juice producers are among the subset of food manufacturers for whom HACCP plans are expressly mandated by the USDA, so Dr Pepper Snapple is under increased scrutiny to "get it right" when it comes to HACCP planning.While plans are typically developed in a coordinated effort between QA/QC professionals and plant managers, Dr Pepper Snapple actively seeks feedback from its other employees.

Bailey says, "These people are on the line every day. They're the real experts. If someone who works on the same system every day says to me, 'Hey, I think you have to check this out. We have a critical control point here.' I'm going to listen to that."

In addition to comprehensive HACCP planning, the Victorville facility ensures product quality and consistency through a variety of methods. Bottles are verified with a vision system that photographs each bottle as it passes along the line. The system allows plant operators to detect defects in the bottles or variations in fill levels. If bottles are consistently leaving the line with fill levels over or under the standard level, plant workers are able to trace the variance to a specific fill nozzle and repair it before the next fill cycle.

The data gleaned from the vision system also undergoes a more thorough audit each day, so that the plant manager can ensure consistent product continues to leave the facility.

Due to the sensitivity of the product, Dr Pepper Snapple keeps a microbiologist on staff to test batches and flavors. Microbiologists and QA/QC employ the TOA test, ensuring the quality and consistency of product taste, odor and appearance.

The facility also executes high-performance liquid chromatography (HPLC) tests, which help to identify and verify the ingredients in each mixture to ensure product consistency from batch-to-batch. In addition, its mix accuracy is verified to 0.01 percent each hour.

Building a Greener Beverage

Dr Pepper Snapple considered several areas when seeking to build the new bottling and distribution center now located in Victorville. Among other factors, site selection eventually hinged on the expense of wastewater treatment. The city of Victorville did not have local wastewater treatment capabilities, but offered to negate the costs associated with wastewater treatment by building and funding the construction of a facility in the city. The construction not only attracted Dr Pepper Snapple, but it also drew in Plastipak, Dr Pepper Snapple’s packaging supplier, to the area.

The wastewater treatment facility has a capacity of 2.5 million gallons per day, much more than it is currently treating. The city of Victorville is actively seeking to increase industry in the area in order to encourage job creation.

The facility recently completed review of its building plans and production methods by the U.S. Green Building Council, which awards Leadership in Energy and Environmental Design (LEED) certifications to buildings that meet certain environmental criteria. On April 25, Dr Pepper Snapple Group announced that the Victorville facility had achieved LEED Silver certification.

The building boasts several unique energy-saving features, including a flat, white roof which reduces the absorption of heat energy outside the building and decreases cooling costs facility-wide.

The facility also utilizes highly accurate, leak-free liquid transportation systems, so despite processing 100,000 cases of beverage product each day, the Victorville facility has minimal syrup loss each day.

It has also drastically reduced its wastewater by employing a highly efficient and state-of-the-art brine recovery system, which allows for the recapture and reuse of much of the facility's wastewater. In addition, bottle washing, traditionally a water-intensive process, is now done with the use of air rinsers.

Continuous Improvement

Already operating a state-of-the art facility in terms of safety — both from a food safety and employee safety perspective — Bailey isn't growing complacent.

"No matter how safe you are, there's always something you can do better," he says with a smile. Bailey and his team are pushing forward to achieve increasingly higher standards throughout the facility in worker safety, food safety, product consistency and energy efficiency.

"We've really upgraded our systems here to ensure that we meet our customer demands, as well as our internal demands and specifications," he says.

These upgrades look to continue, as the facility seeks out alternative energy sources in continuing to reduce the energy it sources from the grid.

Only in its infancy, Dr Pepper Snapple Group's Victorville facility is blowing past the industry-standard benchmarks for safety and quality in beverage production. And as the plant moves toward full capacity, it aims to maintain its dedication to continuous improvement.

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