

# Behavioral Training Gives Workers Standards for Optimizing Output

Southern Clay Products is a Gonzales, TX-based producer of specialty clay minerals for a variety of global markets. It supplies manufacturers of paints, inks, greases, drilling fluids, plastics, paper, and home- and personal-care products. At the site, clay minerals are packaged in a variety of bag sizes, from fiber drums, to bulk and railcar shipments.

In a recent effort to improve profit margin, the company looked for creative alternatives to buying added capacity. This put the emphasis on optimizing current capacity, both of the physical plant and of the workforce. That meant finding ways to increase efficiencies in the human side of the product lines with the most potential for improving overall performance.

Working with Behavioral Science Technology, Inc. (BST), a California-based performance-improvement consulting firm, Southern Clay implemented behavior-based technology to improve productivity. The process involved defining and shaping worker behaviors that result in greater efficiencies. Southern Clay had two missions for the initiative: 1) to optimize first-pass production of materials that are fully fit for customer use, and 2) to "find" new capacity on existing production lines. As an indicator of improvement, the organization measures the number of non-conforming tons per 100 tons produced.

According to Mike Fuqua, vice president of operations, at first it was not apparent to the organization where to look for improvement opportunities to optimize capacity. The site was already doing well in the area of quality, and had already implemented BST's behavior-based approach for improving safety performance. Plant managers realized they could leverage the creativity and involvement that was driving that effort for continued operations excellence.

"The real test of a new initiative is how well it works after the consultants are gone from the site, and at 3:00 in the morning when supervisors are scarce," says Fuqua. "We asked BST to assist us with operations excellence because their approach for safety had already passed the '3:00 a.m. test' at Southern Clay."

The effort was launched with a quality coordinator serving as the facilitator of the implementation team. Other members included the site's process manager, accounting manager, technical services manager and a supervisor. Working with BST consultants, the team identified, gathered, analyzed and formatted the throughput data they needed. Members developed process flows for the production sequence and reviewed existing data to identify where the plant had the highest exposure to non-conforming production. In addition, the team asked experienced supervisors and operators a special set of "seed-questions" to discover critical behaviors.

Combining the information from the process flows, quality data, and frontline interviews, the team developed a list of frontline behaviors it determined to be critical to optimizing output. Included were behaviors related to change-of-shift communications, verification of proper procedure, and a measure of outcome. Because communicating important information at the start of a task is crucial, the

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behavior-based process defined for operators what communication should take place when shifts change, based on specific operational definitions, and explained its importance. This let operators know exactly what behavior is required to increase first-pass quality, even as projects are taken over by other workers. The process' verification procedure was a "check and balance" designed to ensure that proper procedures were, indeed, used during processing, says Fuqua. And outcome measure was created to tell how much material does not meet the intended specification the first time around. This was done by actively sampling product rather than waiting for defects to appear. The process, though common to many process industries, was new to Southern Clay.

The implementation team initially felt that plant operators would be skeptical of using behavior-based guidelines, says operations manager John Best. "But it turned out that they welcomed them," he says, "because they also wanted to see the rework or re-blend rate fall as close to zero as possible."

On the plant floor, the gains have meant less reprocessing, discarding, or downgrading of materials not meeting specification on first pass. During the months of July 2001 through March 2002, the conformance rate improved markedly on the organo clay production line. As a result of both previous process improvements and the current behavioral initiative, the site reduced non-conformance from 3.7 tons per hundred in July to 0.6 tons per hundred in November 2001, an 80% improvement.

According to Fuqua, Southern Clay workers appreciate that their input is having a direct impact on the job. The definitions of operations excellence, he says, have helped everyone know what to look for. "We have a well-established statistical process control (SPC) system in place, ISO 9001 registration, and a high first-time conformance rate," he says. "And yet, somewhat to our surprise, our behavior-based initiative has paid for itself in less than six months. It is helping us remove that stubborn, final few percentage points of non-conforming product."

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