



CASE STUDY

CONSOLIDATING ASSETS MAXIMIZES PERFORMANCE

Streamlining a materials-management system helps increase production and cut waste and redundant part ordering at an Indiana oil refinery.

MICHELLE SEGREST, CONTRIBUTING EDITOR

Two years ago, CountryMark's inventory of more than 600 pump parts and thousands of other spare parts and components could be found in 48 different locations on the one-mile campus of the Mount Vernon, IN, oil refinery (see p. 10).

Corporate goals to sustain these assets, invest in proper procurement, and build a robust inventory-management solution prompted a massive, company-wide WorkPlace Excellence Initiative Program.

CountryMark hired SAP procurement and business-process system expert Lori Foster to spearhead the design and implementation of the materials-management program. Her team included five seasoned team members. With the coaching and sup-

port of consultants from Life Cycle Engineering (LCE), Charleston, SC, the project kicked off in March 2014.

One of the primary goals was to consolidate and identify assets. The 48 inventory locations have now been reduced to just five. The ultimate goal is to have everything in one place, supported with a robust processing system.

To get a visual of the random placement of the various storage locations, Foster said, "Envision them as sheds around the site. Anywhere they could find a place to stick something...that became a storage location. It was all on the site of the refinery, but completely scattered around and without any system to know what we had, where it was, or what needed to be ordered."

THE SITUATION

CountryMark is an American-owned oil exploration, production, refining, and marketing company. In 2013, the company embarked on the WorkPlace Excellence Program. Team leaders developed a set of work processes with step definitions and RACI (responsible, accountable, consulted, informed) charts to determine roles and responsibilities.

LCE assigned a coach for each team with specialized knowledge in each of the focus areas. LCE's Wally Wilson was the materials-management coach.

"CountryMark had performed an assessment and we helped to analyze the

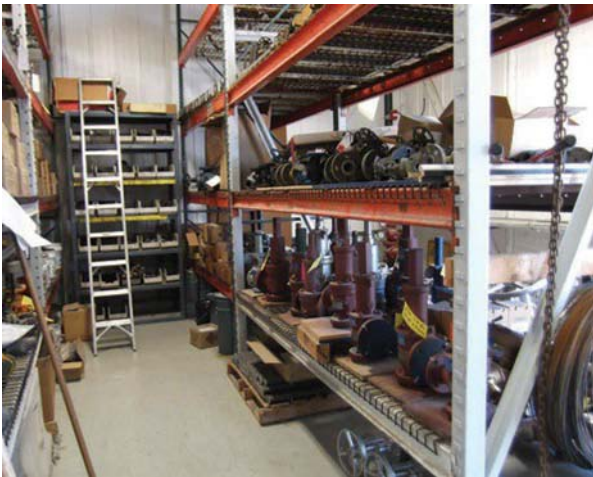
information they provided us," Wilson said. "We looked at where they were and coached them on the best practices in each of the focus areas. Then we came up with a plan that would bridge the gap from where they were and where they wanted to be."

Stockroom personnel were managing mostly weld-shop inventory and consumables. The remainder of the parts were located in 43 different areas around the refinery, including four maintenance shops. This put the burden on the maintenance foreman and maintenance craftsmen to manually track and place orders for parts.

Some parts, such as spare motors, were housed in five or six locations. Nearly 7,000 spare parts have been inventoried, consolidated, and re-organized, so far. About 400 of the 600-plus pump bill of materials are now in the system.

The pump shop stored all of their materials in bins which had to be disassembled and re-organized and setup in the system. Space in the stockroom was limited to only 5,000 sq. ft., with outdated racking. The area was open so anyone at the refinery could walk in and get what they wanted. The two stockroom personnel had a manual checkout system. But if it wasn't used, they would have to physically walk around the stockroom and check inventory, and then manually place orders. Only a couple of individuals knew where items were located.

All parts were expensed upon purchase and the work-order system tied the part to the work order. But no information was being



Warehouse locations were reduced from 48 to five within two years.



Right. In addition to relocating and rearranging materials, all consumables were moved to point-of-use cabinets, which are now the responsibility of each manager.

Far Right. More than 300 bins store all of the pump-shop parts. Bills of materials are now obtained for all pumps. Each gray bin is then taken apart, parts identified, and put away in a location, either back in a rack or a high-density cabinet.



tracked back to the unit regarding maintenance costs.

Accounts payable, purchasing, and inventory were in different systems so there was no three-way matching of purchase orders to inventory.

"There was no tracking or visibility of products ordered," Foster said. "Now, we have traceability. All parts are charged to the work orders, so we know where they get used. We now have a purchasing history, so we know when we last bought it, from whom we bought it, and how to pay the invoices."

THE CHALLENGES

To implement a smooth materials management and purchasing process that had automatic reordering, Foster knew the first step was spending significant time identifying parts, preparing them to be loaded into the new inventory system, and reorganizing the warehouse.

"Parts had been set up in the old system but there were too many to go through to migrate all that data, so we had to start from scratch," Foster said. "We manually added all the parts, including contacting suppliers for pricing and lead times. For each of the 600 pumps, we had to obtain bills of materials, identify the parts needed, work with the suppliers to identify the pricing, lead times, and whether the part was still a valid item."

The next focus was culture change.

"We had to convince everyone that our goal was to set up something that would

benefit everybody, not make things more complicated," Foster said. "For example, instead of the maintenance supervisors having to write manual requisitions, we needed to set up the item in the system and let the system reorder it as we utilized a part."

THE RESULTS

All parts have now been moved out of the maintenance shops. The stockroom has a new layout with an inventory locator system. Long-lead-time parts that might be critical are now identified with stocking agreements with the suppliers. The craftsmen and foremen are focused on critical maintenance work instead of manually chasing parts and materials. The planners are now planning jobs and forecasting the materials that need to be ordered.

Jobs are now kitted prior to the start of the maintenance work, which increases wrench time. The turnaround time for setting up parts, getting updated quotes, and lead-time information is now less than two days.

All purchase orders are processed and monitored for future use. All materials maintained in stock have reorder points, and the materials that are planned are forecasted by maintenance planners.

Emergency orders are manually checked out, making it possible to track material and repair costs. The visibility of repairs and history has resulted in better decision making about repair parts vs. buying new when it is no longer cost-effective to repeatedly repair the same parts.

"I never thought this was going to work," said maintenance planner Jeff Goad. "I argued with Lori when she wanted to move the bins, but now I see how easy it is to find what I need, and how easy it is to have something re-ordered. Now we know what we have."

Larry Conyers managed the stockroom for 32 years, but was not convinced of the benefits the change would bring. "I just didn't see how this was going to work," he said. Now, he is the biggest supporter of the system.

LESSONS LEARNED

Since 2015 has been a year of the implementation and the rollout of new processes, the teams were unable to clean out all the obsolete materials and finalize arranging other locations. Dashboards have been developed with key performance indicators in the areas of sourcing, procure to pay, materials management, and warehouse management.

Foster said the program has been successful thanks to senior management and leadership buy in. After two years of progress, there is still work to be done.

"From a project perspective, it takes about a year to 18 months to implement a program like this," Foster said. "But, from a cultural perspective, we are not finished. CountryMark is probably another 18 to 24 months away from imbedding the true culture change that must be made for sustainment." **RP**