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Initiative on storeroom inventory provides sizable savings and more.

By Carlos-Henrique Arruda and Richard M. Rockwood, ABB

The Solvay Indupa site outside Bahia Blanca, Argentina, produces chlorine, vinyl chloride monomer and polyvinyl chloride, among other products. Since 2006, ABB has managed maintenance on the site through a performance-based agreement that calls for ABB to lower maintenance costs while increasing equipment reliability and availability and decreasing unplanned events.

ABB re-organized the maintenance management structure to align better with the plant's operating units, to foster closer working relationships, which we call partnerships. ABB supervisors attend meetings at the beginning and end of each shift. This spurs identification of maintenance issues and agreement on the priority of upcoming work.

A Key Insight

As a result of these partnerships, ABB and Solvay noticed that many parts — particularly those related to pumps, motors, gearboxes and generators — in the storeroom were either moving slowly, were obsolete or not being used. ABB determined that spare parts expenditures represented 35% to 40% of the overall maintenance budget.

Clearly, optimizing parts management in the storeroom presented an opportunity for potential cost reduction. Moreover, tackling the storeroom issue promised to free-up space there and stimulate greater equipment standardization.

So, in partnership with Solvay, the ABB team systematically developed and executed a plan to reduce and simplify inventory through rationalization.

The team used the site's computerized maintenance management system (CMMS) to develop data on spare parts issues, inventory turns, stocks outs and frequency of use. An inventory cross-reference report identified parts used on multiple pieces of equipment as well as those that originally may have been set up incorrectly on the system.

ABB also employed process-mapping techniques to analyze external repair and rebuild cycle time. This provided insights into external repair and rebuild processes that functioned well — but also highlighted those that were disconnected or dysfunctional.

Monthly meetings with Solvay supervisors about which parts should be retained and which required

further review ensured they supported the findings and results.

The ABB team then divided the approach into several sub-tasks that were more manageable and offered improved project and progress tracking. In particular, the team used Pareto charts to highlight the relative contribution of each part or component to the total problem. This led to focusing on the critical few, allowing energies to be channeled into those areas representing the biggest impact. These could be tracked by part-related key performance indicators.

The inventory improvement project reduced the maintenance budget by 19.9% without any adverse impact on delivery of maintenance services.

The Way Forward

The site now is poised to take performance to higher levels with a focus on equipment reliability. The first step was to get the CMMS conditioned to identify "bad actors" (based on labor hours and parts costs involved in keeping equipment up and running). This required increased discipline in work-order management, to collect and enter the necessary data into the CMMS.

ABB then created a series of reports for both individual production units and the plant as a whole. These rank-ordered equipment, thus highlighting units consuming more than their "fair share" of labor or parts. This ranking, along with downtime reports, provided the basis for a bad actors list.

Once identified, a bad actor is discussed at the weekly production area management meeting between ABB and Solvay, so decisions can be made about repairs and improvements. The key to an informed decision is knowing when too much time and money have been invested. So, the meeting encourages critical examination and questions like "Why have we already spent $20,000 to maintain a pump when we can purchase a new one for $10,000?"

ABB's site team documents and retains each improvement initiative in a library that functions as a reference for further efforts.

Carlos-Henrique Arruda is a Full Service specialist in chemical, oil & gas industries, based in Camaçari, Brazil, for ABB Process Automation. E-mail him at carlos-henrique.arruda@br.abb.com. *Richard M. Rockwood was with ABB when this article was written.*