

POINTS OF INTEREST

PAGE 1:

- The Situation
- The Challenges
- The Approach

PAGE 2:

- The Results
- About Life Cycle Engineering

An Aluminum Smelter Improves Asset Reliability and Reinvigorates Operations with Reliability Excellence

The Situation

The 430,000 metric ton/year aluminum smelter, originally commissioned in 1957, operated in a reactive environment, resulting in relatively high cost per unit production. The site competes in a global market, where the sale price of finished product is fixed on a global scale. Expanding markets and improved delivery response required that the client reduce avoidable costs to improve sales and profit margins, providing opportunity to continue to be competitive and remain profitable for the long term.

The Challenges

The plant had an employee base of more than 1,600 operators, maintenance, support, and management personnel in a strong union environment. Poor asset reliability resulted in a high percentage of breakdowns, reactive maintenance, and routine production overtime to reach daily production goals. All types of asset care were accomplished by maintenance personnel, with production personnel accomplishing only production tasks and very basic cleaning of assets.

The Approach

At the urging of leadership from the site's corporate group, the plant agreed to participate in a Life Cycle Engineering Reliability Excellence (Rx) assessment, and to implement the Reliability Excellence Master Plan based on the results and business case developed during the assessment process.

One unique challenge to be overcome was that the site operates in a French-speaking region in Canada. While many people in management are fluent in English, the vast majority of the plant population speaks only French. To make sure that everyone would be fully engaged in the improvement effort, the client insisted that the entire engagement be conducted in the French language. To satisfy this requirement, Life Cycle Engineering (based in Charleston, SC) entered into a partnership with Groupe Createch, based in Montreal, Quebec. The project start was delayed for nearly one year while the partners were trained and coached in the LCE approach to Reliability Excellence to a point where they were prepared to engage with the client.

Jointly with the client, four multi-functional focus teams were created to focus in the areas of Leadership Engagement, Work Control & Planning/Scheduling, Reliability Engineering, and Materials Management. The Leadership Team's primary focus was management practices and plant-level metrics while providing functional and moral support to the other focus teams. The focus teams initially developed processes describing how the site currently conducted daily activities in each area. Using these current processes, the LCE/Groupe Createch team coached the focus teams in current best practices in business, and mentored the



teams through development of target processes to improve efficiency in maintenance and materials management, and improved reliability engineering functions that reflected best practices within the operational and functional organizations in the plant.

These new target processes were implemented in a small pilot area to provide the opportunity to prove the new processes while engaging Production personnel in asset care, autonomous maintenance activities and operating within the guidelines of the new target processes. Concurrently, necessary asset improvements were completed to raise the level of reliability in the assets, providing the foundation for improved preventive and predictive Maintenance activities to sustain the assets at a high level of reliability.

Key performance indicators were developed to provide regular data on PM compliance, schedule compliance, resource utilization, and other measures of plant performance and successes.

Following successful implementation in the pilot area, processes and practices were further implemented in other areas of the plant. The plant is still in the process of implementing these processes throughout the plant in an orderly and planned fashion, ensuring success in each area before moving to the next area.

Largely through the efforts of leadership, specifically the plant manager, maintenance director, and Reliability Excellence facilitator, along with the other focus team members, the successes realized in the pilot area have been expanded to several other areas of the plant, also with great success.

The Results

A proactive culture of reliability and continuous improvement is evident in all areas of the plant, and the partnership between management and union is very strong. The plant is very proud of their accomplishments thus far, and the employees are determined to continue the quest for excellence throughout the organization.

As a result of implementing the Reliability Excellence processes and practices in the pilot area, uptime and throughput were increased, eliminating the need for production overtime to meet daily product goals. Formal partnership agreements between management and union, focusing on proactive methods and sharing of both profits and problem solving, are in place.

Overall, the Reliability Excellence implementation has been highly successful, exceeding the original return on investment estimates of 4:1. To date, the plant has realized savings in excess of \$3.5 Million.

The site continues to improve asset reliability while decreasing the cost per unit to produce, and the long term future of this pillar of the community and economy is very bright.

About LCE

As a leading maintenance and reliability solution provider for over 30 years, Life Cycle Engineering (LCE) (www.LCE.com) helps public and private enterprise gain increased profitability through greater capacity, lower operational costs, and decreased downtime. By combining a range of industry experts, unique processes with proven success, and a comprehensive array of educational courses, LCE has gained reputable status as the premier provider of innovative and successfully executed reliability and maintenance solutions worldwide.

