POINTS OF INTEREST

Chemical Processing Plant Uses Asset Management Best Practices to Build Total Process Reliability

The Situation

A very unique, large-scale coal gasification facility in the United States manufactures synthetic natural gas and numerous chemical commodity products. Products include carbon dioxide, anhydrous ammonia, naptha, and ammonium sulfate which is fertilizer for use in agriculture.

The Challenges

An increase in the demand for the plant's chemical products and a decline in asset reliability were the catalysts for a site initiative to improve efficiency. It is critical to ensure equipment reliability and safety during chemical processing because it is a very complex and potentially hazardous process. The executive team made a decision to improve performance through a proactive approach rooted in reliability best practices and strategic asset management.

The Approach

The organization partnered with Life Cycle Engineering (LCE) for their expertise in reliability and asset management. The plant began a journey to achieve excellence in daily and future plant activities by creating a proactive work environment that enables continuous improvement and optimal safety and environmental performance.

To kick things off, LCE conducted a full site assessment to understand trouble spots and opportunities for quick wins. Through a 15-month engagement, LCE partnered with the site leadership team to institute reliability best practices. Focus teams were formed to target specific areas for reliability implementation:

- Reliability Engineering
- Work Management
- Materials Management
- Operator Care

The LCE project team used the Prosci®[1] ADKAR® model to facilitate individual change. Using this approach the team was able to determine if individuals had the necessary Awareness, Desire, Knowledge, Ability and Reinforcement™ to make the change. The approach requires training employees, coaching for critical levels in the organization and adequate communication throughout the entire process. Additionally, a

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strategic asset management plan was implemented to improve performance.

Key Performance Indicators were identified by the team and parameters were set up to track success throughout the process.

The Results

While still relatively early in the journey to reliability, the site is now equipped with processes based on industry best practices and asset management plans that are aligned with business goals. Achievements accomplished to date include:

- Multi-million-dollar reduction in the facility insurance rates due to improving asset reliability
- A robust equipment hierarchy and criticality rankings for over 50,000 assets
- A reliability engineering function that utilizes risk-based asset management practices
- A leadership team that understands the importance of leading proactively
- Employees have been trained on best practices to develop the following competencies:
    - Planning and Scheduling
    - Reliability Engineering
    - Change Management leadership principles

Conclusion

Though still early in implementation, the organization is on its way to achieving world-class status in reliability and asset management efforts. Employees report an environment that is more predictable and less stressful. As the initiative matures, performance and production rates will increase and employees' work life will continue to improve.

About Life Cycle Engineering

Life Cycle Engineering (LCE) (www.LCE.com) provides consulting, engineering, applied technology and education solutions that deliver lasting results for private industry, the Department of Defense and other government organizations. The quality, expertise and dedication of our employees enable Life Cycle Engineering to serve as a trusted resource that helps people and organizations to achieve their full potential. Founded in 1976, LCE is headquartered in Charleston, South Carolina with offices across North America and experience around the globe.

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