CASE STUDY

"Sometimes, it makes more sense to remove a full section of the pressure vessel to clean the internals."

CECO ENVIRONMENTAL

CASE STUDY: Olefins Aromatics Plant

LOCATION: USA Gulf Coast

INDUSTRY: Petrochemical

THE SITUATION: A multi-national chemical producer needed to install a multi-stage separation and filtration system to remove contaminants from ethane fuel gas that feed low-NOx burners.

THE CHALLENGE: The customer was experiencing a buildup of sticky residue on its gas burners and required a filtration system that would separate fine aerosol mist, solids and be able to handle intermittent liquid slugs. Due to the high value of this plant's produced product, system down time for cleaning needed to be kept to an absolute minimum.

THE SOLUTION: A multi-stage approach, combining CECO Peerless slug-catching multi-cyclones followed by high-efficiency coalescing filter elements proved to be the ideal solution for this sub-micron filtration challenge. The design incorporated a removable central vessel section which allowed for the multi-cyclone bundle to be removed for cleaning during plant outages.

THE PACKAGE:

Multi-cyclone separator

High-efficiency coalescer elements

Multi-section ASME pressure vessel

THE RESULTS:

- High-efficiency filtration to protect compressors
- Multi-year run time between filter changes
- Customized design for cleaning the internals

ENVIRONMENTAL BENEFITS: Clean ethane fuel gas allows the burners to operate with minimal NOx exhaust and with reduced downtime for maintenance.

THE CECO ADVANTAGE: CECO Peerless performed computational fluid dynamics (CFD) analysis during the design phase to visualize gas flow patterns and assure the customer that the multi-stage separation approach was optimized before construction. The primary stage cyclones reduced solids loading on the coalescing filter elements, extending operating time between filter changes.

"We specialize in solving problems through application engineering. Our team collaborates and determines the best solution for the customer problem to ensure it's a win-win." – CECO Environmental Team

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