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CASE STUDY

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THE INSTALLATION OF TRI-SHIELD FILTER CARTRIDGES HAS ENABLED AN OFFSHORE OIL & GAS COMPANY IN THE EASTERN MEDITERRANEAN SEA EXTEND RUN TIMES BY 2.8X, REDUCING THE OPERATION COSTS AND THE ENVIRONMENTAL IMPACT ON DISPOSAL AS WELL AS FUGITIVE EMISSIONS MAKING THE WORLD SAFER, HEALTHIER, AND MORE PRODUCTIVE.

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## BACKGROUND

Monoethylene glycol (MEG) is widely used in the oil & gas markets for injecting downhole at wellheads or in pipelines to prevent hydrates at pipeline conditions. It is also used as a liquid desiccant in Glycol Dehydration processing units.

In the harsh conditions of offshore deepwater gas production facilities, where the exposure to lower temperatures in subsea pipelines is common, these practices are imperative to prevent hydrate formation to keep the facility running.

Our customer is an oil & gas company that has gas fields in the Eastern Mediterranean Sea operating off a platform at a depth of 800ft and has a processing capacity of 1.2bcf per day of natural gas.

## THE CHALLENGE

The platform's processing units include, among others, a MonoEthylene (MEG) Glycol Dehydration system. Although common to gas processing, units of this size require special attention to keep facilities producing at optimal rates.

The customer's OEM filter had issues with both removal efficiency and short filter life due to the wide particle size distribution of solid contaminants. The customer had to compromise on filter efficiency allowing contaminants to pass downstream to extend the life of the filters.

The glycol regeneration system is a closed loop process that supplies the dehydration tower with clean, dry (lean) glycol for its dehydration purposes. Removal of contamination is important for consistent performance of exchangers, pumps, reboilers, and contact towers. The buildup of solid contaminants was causing foaming and poor contact kinetics which led to higher usage of resources and off spec gas.

## THE SOLUTION

Jonell Systems recommended conducting a contaminant analysis which was difficult due to the remote location of the platform. Working in partnership with the customer, our technical engineers and lab facilities completed a detailed analysis that revealed an approximate 100X contaminant size range from smallest (0.45) micron to largest (35) micron.

Jonell Systems proposed depth filtration technology which is better suited to applications with a wide particle distribution range compared to pleated media which the customer was using.

Based on the particle size distribution analysis and the total suspended solids, Jonell Systems proposed the JLPE 5-micron TRI-SHIELD media cartridges for the pre-carbon filter. The gradient efficiency across the depth of the cartridge allowed small contaminants to penetrate and be captured inside while larger contaminants were captured in the outer layers. This high utilization of media provided the ideal solution for life and efficiency.

We recommended a similar approach on the post-carbon filter with a 2-micron filter to capture carbon fines.

## BENEFITS

TRI-SHIELD cartridges proved to be the best solution in terms of initial lower pressure drop, filtration efficiency, dirt holding capacity and thus life of filters.

**TRI-SHIELD JLPE filters extended run times by 2.8x reducing operator exposure from over 70 times per year to approximately 25 times per year.**

This reduces the operations cost and reduces the environmental impact on disposal as well as fugitive emissions making the world safer, healthier, and more productive.

