



Case Study

HEPA Filter Upgrade

Chemical Cogen Plant in Houston, Texas

The site had two (2) 40.0 MW GE Frame 6B units that were being operated in a cogeneration application. The units operate within a large chemical refinery and are within a few miles from the ocean.

The air inlet filtration system on both gas turbines consisted of a barrier pre-filter and Merv 14 final filter.

Problem

The chemical refinery environment was filled with high levels of hydrocarbons and other airborne particulates. Its proximity to the ocean resulted in heavy precipitation, periodic salt spray and fog events. All of these variables contributed to excessive axial compressor fouling, which resulted in reduced output and offline compressor washing to recover performance.

The operator approached AAF as world leaders in gas turbine HEPA inlet filtration solutions looking to eliminate compressor fouling and the need to offline wash the turbine.



Coastal Chemical Refinery in Houston, TX



Ge Frame 6B Combustion Turbine

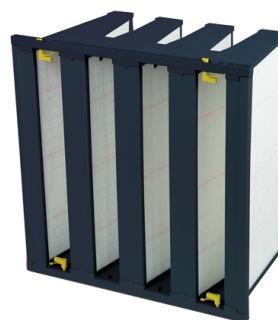


AAF Hepa Technology





AmerShield - Long Life
Coalescing Pre-Filter



AAF HydroVee E12 Hepa

Solution

AAF supplied the customer with our proprietary AmerShield 6/4 pre-filter to protect the final filter from large airborne contaminants and to coalesce moisture from the incoming air. This filter has a 4" media pack within a 6" deep composite frame. When directly coupled to the final filter, the 2" void between the pre-filter media and the final filter allows for 100% utilization of the pre-filter. Without this void, "tiger striping" would occur where the "V" of the final filter touches the pre-filter, which greatly reduces the pre-filter utilization and increases resistance.

The existing final filters were replaced with the 17" deep version of the HydroVee E12 filter. This filter is 99.5% effective against the maximum penetrating particle size and virtually eliminates compressor fouling. The 17" deep filter was selected to minimize the resistance to air flow and maximize the life of the final filter. No modifications to the filter house were required to accommodate these filters.

Successful Outcome

The first unit was fitted with the AmerShield 6/4 and HydroVee E12 filters and then put into operation. Site personnel monitored the performance of this unit and calculated that they were producing 3% more power than prior to the use of these filters. The customer determined that this correlated to an average monthly cost savings of \$42,000.

Due to the cost savings that was realized on the first unit, the second unit was upgraded during the first available outage and the customer is experiencing similar results.



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