

Optimization by Customization

PROJECT BACKGROUND

High Changeout Frequency: Average element run life 18 – 36hrs.

High Operating Cost: Nearly \$1MM/yr in spending for conventional filters.

Poor Fluid Quality: Wide range of particle sizes were recirculating and settling throughout the system.

PROCESS CONDITIONS

- Unit: Tail Gas Unit
- Flowrate: 640 gal/min
- Fluid: Rich Amine (MDEA)

PROJECT GOALS

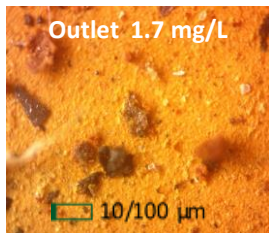
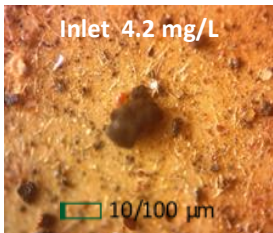
- Reduce operating costs
- Increase element run life
- Improve fluid quality

CONVENTIONAL SEPARATOR

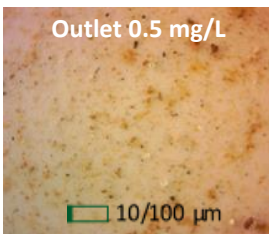
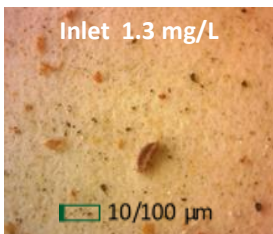
Efficiency: No meaningful data available on the inlet and outlet fluid quality.

Media: The media used for separation was not perceived to be capturing much contaminant or improving the fluid quality.

Inlet and Outlet of Conventional Filters



Inlet and Outlet of Transcend Elements



ROOT CAUSE APPROACH

- **Analytical Work:** Transcend personnel performed advanced online analysis to verify fluid quality and separation efficiency of the conventional filters in service.
 - Inlet concentration of solids was 4.2mg/L.
 - Outlet concentration of solids was 1.7 mg/L.
- **Media Selection:** Transcend manufactured multiple element configurations designed to optimize media availability and contaminant capture capacity.
- **Implementation:** Filter elements of each design were installed and operated under typical process conditions for the TGU Amine Unit and analyzed over a range of differential pressures.
- **Final Design:** Based on the gravimetric results and monitoring of each element design, Transcend had a firm understanding of the media technology needed to provide longer life and increased separation efficiency.

RESULTS:

- **Reduced Media Velocity:** Using advanced Novalite™ media technology with specialized structures to maximize media availability, media velocity was reduced and dirt capture increased.
- **Increased Element Run Life:** Upgraded elements provided 3-10X longer run life compared to the conventional filters.
- **Improved Fluid Quality:** Element efficiencies were immediately improved along with longer run life.
- **Reduced Operating Cost:** The longer run meant 80% lower operating cost, equal to savings of over \$800,000 per year.
- **Analytical Results:** The photomicrographs of the conventional elements indicate that the effluent contained large contaminant. The Transcend elements cleaned up the system rapidly, with the photomicrographs and analytical indicating contamination levels had been reduced dramatically.