

Client: UK Refinery

Year: 2021

Activity: Fin-fan Media Blasting Using the Pro-XL™ System



## Project Highlights

- Pro-XL™ media blasting system utilised
- On-Line cleaning to eliminate production losses
- Plant efficiency returned close design value
- Zero scaffolding – Cleaned bottom up
- Reduced downtime of sour water stripper
- Residue non-haz and suitable for site WWTP
- Safe application using silica free media

## The Challenge

Over a period of years the engineers on the sour water stripper (SWS) had noticed that the overhead fin-fans were becoming heavily fouled and losing efficiency despite the regular water cleaning programme. The reduction in exchanger performance had led to excess steam containing ammonia being sent to the sulphur units, leading to operational difficulties and increased corrosion of pipe work.

During the clean, the refinery would need to keep the overheads on the SWS online to allow the process fluids to keep circulating. Conventional methods such as water jetting would have cooled the circulating medium in the tubes, thereby causing the deposition of ammonia salts and potential ammonia blockages should the temperature in the tubes reduce.

## The Solution

After working closely with the Operations Team to understand the issues, and come up with a solution, ProDecon® was contracted to mobilise their Pro-XL™ media blasting system. Our technicians worked from below the fin-fan bank ensuring maximum penetration on the areas of heaviest fouling. Access to the top tube bank was not required, which provided a much quicker set-up time with the fan switched off only during the actual cleaning process.

Cleaning was carried out in one shift, reducing the total downtime for the cooler fan. As sour water continued to flow through the unit, the risk of blockages previously experienced with over cooling from water jetting was avoided. Consumption of abrasive was very low and precisely controlled through the blast system, resulting in a relatively small amount of dry waste disposed as non-hazardous waste

## The Results

The results of the clean exceeded the plant's expectations. Prior to the clean the fin-fan unit was operating with an average temperature reduction of 6°C. The plant's operator was hoping the media dry clean would increase this by a further 3°C to improve efficiency. However, after the clean the average reduction was measured at 16°C, which is approaching the unit's original design value. This enabled the plant to keep the outlet temperature stable and under control, resulting in a significant reduction in the amount of steam sent to downstream process units, improving their operation with a positive impact on the entire plant's efficiency.

Further benefits included the reduction with off-line time which was previously required when the sour water stripper was cleaned with water, resulting in the refineries sour water accumulating in tanks for treatment later which directly increased costs.

