

# ProDecon® Case Study

## Petrochemical - Olefins Unit, Abu Dhabi

### Quench System Decontamination



#### PROJECT HIGHLIGHTS

- ▶ ETHYLENE CRACKING UNIT DECONTAMINATION
- ▶ 0% LEL, 0ppm H<sub>2</sub>S, 0ppm BENZENE
- ▶ REDUCED TURNAROUND SCHEDULE
- ▶ ADVOX™ EFFLUENT TREATMENT FOR COD & TOC
- ▶ TAR LEVELS MINIMISED

#### THE CHALLENGE

The Petrochemical operations team engaged with ProDecon® for the decontamination of its quench system during the 2022 Turnaround. This was the first decontamination to be carried out on the quench system with previous turnarounds experiencing high levels of benzene, tar and a strong odour on opening the system. The client wished to minimise the requirement for mechanical cleaning and eliminate the need for BA on entry. Further more, previous shutdowns had challenged the site waste water treatment systems adding another consideration to the works.

#### THE SOLUTION

ProDecon® engineers worked closely with the client operations to integrate the decontamination into the shutdown planning to include the Quench tower, Tar and Gasoline Separators and Decanter.

To maximise removal of solids and heavy hydrocarbons, a liquid phase circulation was agreed upon with a final vapour phase sweep. This option provided the largest reduction in the mechanical cleaning requirement whilst also ensuring a safe and comfortable working atmosphere. Maximising the hydrocarbon removal would present a challenge to the limitations of the site waste water treatment facilities. ProDecon® employed its ADVOX™ treatment to reduce the loading on the Effluent Treatment

Plant (ETP). A cooling and temporary storage system was mobilised to provide residence time and a filtration skid used to reduce the fine solids. Our ADVOX™ chemistry was deployed to rapidly reduce the TOC and COD prior to draining to the ETP.

#### THE RESULTS

The decontamination of the Quench system was completed successfully with gas free results. Initial inspection of the column reported an overall good level of cleanliness with tar deposits significantly reduced when compared to previous results, resulting in significantly less material for removal.

Access was now safe with 0ppm Benzene recorded and no requirement for BA as experienced during previous shutdowns, leading to increased productivity of the mechanical team. The remaining residues were reported as hard brittle material and much easier to physically remove than the previous sticky sludge.

The picture to side is from the inside of the tar settler which highlights the reduction in sludge level versus the previous turnaround. The process improved the safety of the turnaround event for all on the unit and reduced the schedule.



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