Client
UK Oil Refinery

Location
North East, England

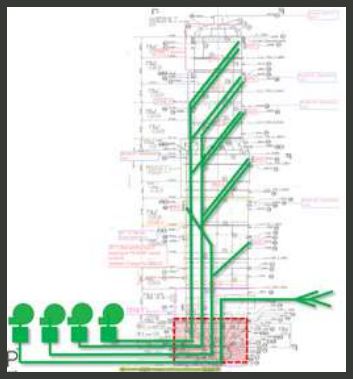
Featured Product Range

VENTEX® Ventilation Solutions

RAVEX® Fume Control

Project Plans

RVT Visited the site to assess the requirements and make bespoke recommendations accordingly.



Welding fumes controlled over multiple levels at a major oil refinery.

Project Overview

The oil refinery is situated in the North of England and is one of Europe's largest plants. The refinery is well known for its production of aviation fuel but it also supplies more than a sixth of the UK's road transport fuel. One of the oil refinery's main objectives is to promote employee health and wellbeing, despite the often difficult working conditions in which they operate.

During a 19-day major maintenance period, the refinery's Vac Vessel required some repairs, meaning works need to be carried out in a confined space and without delay.

Challenge

Teams working inside the Vac Vessel were carrying out a range of activities including cleaning, grinding and welding stainless steel. Fumes created by these activities are carcinogenic and highly toxic, which if not removed could pose significant risk to the health of worker, especially when contained within a confined space.

Due to the multiple 'zones' within the vessel and the different activities happening, it was necessary to capture the fumes at source as well as provide around 10 air changes per hour within each zone. This would protect workers carrying out the work and prevent fumes and gases from migrating into other areas.

All of this needed to be achieved without obstructing manway entrances. Without a suitable fume extraction method, it would have resulted in over reliance on Personal Protective Equipment and downtime from stopping works due to a build up of fume and gas.

- RVT Group visited the site to survey the hazard control requirements, designed an effective system, supplied and installed the solution, and collected the equipment at the end of the project.
- VENTEX® 300M Centrifugal fans extract dangerous fumes in line with COSHH regulations.
- The RAVEX® Wandafilta Plus Extraction & Filtration Kit has 3 stages of filter media, up to HEPA filtration.
- The VENTEX® Centrifugal Fan 200S-HP is particularly suited for extracting dust and fume, as well as providing fresh air supply where needed.
- RVT Group's range of fans are specifically designed to maintain high pressure, ideal for extracting hazards from deep inside vessels.

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if you prefer to speak with someone

RVT Group were approached because the client knew of our track record with similar projects with a critical nature. They were aware of our specialist techniques which involved using our bespoke high-pressure extraction systems.

Solution

RAVEX® Wandafilta Plus Filtration Kits were installed with VENTEX® 200S HP Centrifugal fans for localised fume capture that filtered fumes to H14 (HEPA) standard. This means that an impressive 99.99% of 0.3-micrometer air particles are captured so out of 1,000,000 particles, only 10 particles will not be captured.

The fume extraction solutions used custom-made narrow arms that were fitted with brackets, meaning they were easily attached to scaffolding inside work areas. These arms made it easy for workers to move the capture hood whilst welding to capture fumes directly at the source, an often difficult task when using local exhaust ventilation (LEV) systems.

Extraction setups were equipped with 200m hoses to run along the outside of the vessel before splitting in smaller hoses which were 80mm and 100mm in diameter. These smaller hoses were connected to both the moveable arms with capture hoods and special attachments on the tank nozzles which helped to ventilate the space and ensure adequate air quality was maintained during the major repair works.

The turnaround was deemed a success, with KPIs and safety goals being met alongside customer requirements. RVT Group were grateful to be invited back to provide additional support throughout 2023 and 2024.