

**Client: Scandinavian Refinery**  
**Year: 2021**  
**Activity: Flare Header Vapour Phase Decontamination**



### Project Highlights

**4 Flare systems and 4½km of flare header**

**12hr decontamination per flare header section**

**26hr overall in alignment with refinery system**

**Specialists equipment mobilised from the UK**

**0% LEL, 0ppm H<sub>2</sub>S, 0ppm Benzene**

**All pyrophorics eliminated**

**Immediately ready for Hot Work**

### The Challenge

A Scandinavian refinery contacted ProDecon® to support their turnaround with vapour phase chemical decontamination of the refinery flare header.

The scope required ProDecon® to remove all hydrocarbons, whilst neutralising pyrophoric iron sulphide, prior to hot work being performed. The flare header consisted of four flare stacks, 4.5km of pipework across three production lines, with over twenty five injection points.

Vapour phase decontamination was selected due to the piping system configuration, complexity and desired schedule. An alternative contractor had previously undertaken vapour phase decontamination on this system and failed, resulting in the occurrence of fires on cutting. The refinery team sought ProDecon's expertise and quickly gained confidence in our ability to deliver the decontamination safely and efficiently.

### The Solution

ProDecon® integrated into the refinery turnaround team to plan the logistics, communication channels and to map the decontamination sequence, to deliver the most suitable vapour phase process. Early integration to manage risk, ensured client confidence with our approach to deliver the works safely and on schedule. The size of the flare system, required careful planning and ProDecon® mobilised significant resources to ensure all injection points were monitored in parallel across the refinery.

ProDecon's proprietary chemicals, Decon-88VP™ designed for vapour phase application was selected, followed by Pro-Ox™, to treat any pyrophoric materials in a safe and controlled reaction. ProDecon's own steam sampling method, incorporating complex field-testing analysis, was used to track the decontamination process and determine the end point as early as possible, based on results not time.

### The Results

ProDecon® undertook the decontamination of all three production line flare headers simultaneously. The chemical injection on each section lasted 10-12 hours, with injection times staggered to align with the refinery shutdown procedures.

The team achieved 0% LEL, eliminating traces of H<sub>2</sub>S, Benzene and any residual pyrophorics across the four flare header stacks and associated production lines. All 4 systems were completed in a total 26 hours window, in coordination with the refinery operations release schedule.

The Senior Plant Engineer was thankful for our professionalism, expertise and approach to safety. The decontamination was delivered on time and within schedule, allowing the maintenance team to carry out hot works at all flare header cut points in a safe manner, with no delays.

