

One of the largest LNG facilities in a remote region of the world relied on ZymeFlow for its first decontamination ever

Project

In 2020, **one of the largest LNG facilities in the world** reached out to ZymeFlow to discuss strategies for its **first ever** decontamination and full turnaround. The plant, located in **Angola**, has the capacity to process **1.1 billion cubic feet of natural gas per day**. *(This production is equivalent to 1.028 trillion BTUs, which would be enough to power all of Brunei's natural gas needs for more than a week.)*

The 10-day turnaround would include the decontamination of 10 circuits. The goal was to successfully decontaminate these circuits within 12 hours, which would allow the turnaround team to begin their work.

Challenge

Our team faced many challenges on this complicated project. This was the **first full chemical decontamination job** at this facility and no prior planning had been done before or to this scale.

Additionally, there were many extreme logistical complications, including long Covid quarantine periods and supply chain and shipping disruptions. Upon arrival, our team had to **quarantine for 10+ days** during both the planning and execution phases of this project. Shipping to this very remote site was **complicated**, which made getting the equipment and chemistry to the location **incredibly difficult**.

Engineered Solution

The **intensive logistical challenges** of this project were met head-on by our planning team. Planning began a full year out and personnel from multiple departments contributed.

Due to the **large size and scale of equipment** at this site, (with most towers being over 150 ft tall) engineering a proper dispersion of our chemistry was going to be difficult outside of using steam as a carrier. With the customer's planning team, ZymeFlow utilized a portable boiler system as the carrier for **ZymeFlow UN657** in a Vapour-Phase[®] application to treat the contaminants. ZymeFlow UN657 is unique in that it boils at 220°F (104.4°C), allowing for complete vaporization of our chemistry across the large individual circuits.



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Engineered Solution (cont.)

ZymeFlow UN657 broke surface tension of LEL to the pores of the metal, allowing for a more **total clean** rather than using an atomization based process. This solution simultaneously and irreversibly **oxidized all of the H2S and FeS**.

Utilizing a Vapour Phase method **significantly reduced** TA project effluent especially in comparison to waterwash and/or floodfilling based applications. The Vapour-Phase® process was the best application given the client's limited on-site wastewater facilities.

ZymeFlow UN657's uniquely low BOD/COD chemical properties allowed for a quicker metering of turnaround effluent through their limited wastewater facilities when compared to traditional chemical solutions. Cleverly, ZymeFlow UN657 flips from water soluble to oil soluble as it expends itself on contaminants. Meaning the vast bulk of chemistry leftover in the effluent was separated completely out of the wastewater stream, further expediting the disposal process saving valuable time and capacity in the process.

Procedurally, this is critical part of our best practices, and dramatically reduces the total cost of ownership of turnarounds. We like to advise our customers to consider not only the expenditure of the process on the front end of the turnaround, but also the back-end expense disposing of all the effluent generated during the decontamination activities. All of our engineered solution are designed from the very outset with the total cost in mind.

Results

The planning team was able to get personnel, equipment and chemistry to the site on-time for the project, and the solution to create the necessary steam was successful.

ZymeFlow personnel were on-site for 17 days. Upon the **on-time completion** of the decontamination, H2S and LEL in all units had reached **zero levels with no pyrophoric activity**. This was achieved in less time than originally expected, which allowed the turnaround team to initiate other processes.

The job was completed **on-time, safely** and with **no incidents**.

