

ULTRAFAB™ AGSU EFFECTIVELY PROCESSES GAS AT MAJOR LNG PROCESSING TERMINAL



SITUATION

The abundance of North American natural gas ensures a cheap and now transportable energy source for the rest of the world. In recent years, the construction of liquefied natural gas (LNG) facilities to process and transport this gas has been significant throughout North America and the rest of the world. These are very large, typically multi-phase facilities capable of producing approximately 5 mtpa of liquefied natural gas. In most cases, LNG facilities apply various processes to pipeline quality gas prior to liquefying the resulting methane for transport.

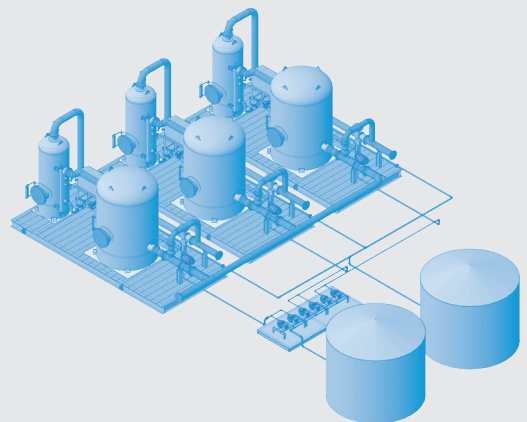
CHALLENGE

A large LNG export facility was constructed in the Gulf of Mexico region to process and export large volumes of LNG. The source pipeline gas for the facility contained 4-8 ppm of H₂S and contaminants such as CO₂ - all of these contaminants needed to be removed before the gas could be liquefied. Amine processes are used to remove the H₂S and any CO₂ from the gas, yielding a concentrated acid gas waste stream. This acid gas stream is vented to atmosphere after removing H₂S and other contaminants to meet regional emissions limits. Acid gas sweetening units (AGSU) use H₂S scavengers to remove the H₂S from the acid gas. Because these LNG processing terminals are producing

such large volumes of LNG, the process had to be capable of removing as much as 1.5 ton/D of H₂S from the acid gas stream prior to venting.

SOLUTION

The selected AGSU for the LNG processing terminal was an UltraFab Flooded H₂S Removal System. Each phase of the LNG facility was designed to include two amine trains with each amine train producing approximately 16 MMscf/D (450 e³m³) of acid gas. Three UltraFab AGSU systems were configured to process the acid gas from each amine train.



RESULTS

The H₂S concentration in the acid gas stream from one amine train was estimated to be 288 ppm H₂S, or 412 lb (187 kg) of H₂S, so each UltraFab AGSU removed approximately 140 lb/D (62 kg/d) of H₂S. The AGSUs were configured to remove H₂S to less than the 10 ppm H₂S emissions limit. Additional treatment to remove benzene and other VOC compounds was located further downstream. Subsequent operating cost was approximately USD 0.01/Mscf (USD 0.38/e³m³).

THE ULTRAFAB ADVANTAGE

UltraFab Flooded H₂S Removal Systems offer an operationally efficient, cost effective solution. Superior UltraFab design, coupled with Nalco Champion's technical expertise and wide-ranging field experience result in greater operational efficiency and lower chemical cost.

UltraFab solutions are available in a wide range of sizes and variations, treating gas volumes ranging from a few MMscf/D to several hundred MMscf/D and reducing H₂S concentration to virtually any outlet specification, including zero ppm.

GOALZERO

SAFETY MATTERS

The safety of our associates, customers and communities is vitally important. From the way we operate, to the products we develop, to how we partner with customers, our goal is zero: zero accidents, zero incidents and zero environmental releases.

At Nalco Champion, safety is more than a metric, it's a mindset. It's how we conduct ourselves, every day, everywhere it matters.

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