Turnkey condensation and recovery solution optimises safety

thyssenkrupp Uhde has engineered and installed a turnkey condensation and recovery solution that optimises safety and reduces operational costs at Richards Bay. Spiro Comitis, Chief Process Engineer for thyssenkrupp Uhde, explains.

The new Rail-Loading Condenser system lowers operational costs, minimises flaring and ensures statutory inspections can be carried out safely.

thyssenkrupp Uhde (tk Uhde) has successfully supplied and commissioned a Drop Tank and Rail Loading Condenser Unit at Richards Bay harbour, which is contributing to reduced operational costs and optimised safety for a key customer.

"The scope of the project was to reduce the need for flaring of NH_3 vapours during the loading process by installing a condensation and recovery system for the non-condensable components present in rail tanker vents," says Chief Process Engineer for tk Uhde, Spiro Comitis. "The Drop Tank part of the system is used to drain the last remaining volume from the main storage tanks that cannot be pumped out due to the properties of NH_3. The condenser portion of the project recovers ammonia vapour directly from rail tanker vents during filling operations, which limits the need for flaring of ammonia product," he explains.

This new condenser system reduces the burden on the refrigeration system of the existing storage tanks by separating the non-condensable components directly from rail tanker vents before entering storage, which lowers operational costs and minimises flaring.

Spiro points out that another important consequence of this project is that it ensures statutory inspections can be carried out safely and timeously, owing to the implementation of the drop-tank.

Renowned for its EPC (Engineering, Procurement and Construction) capabilities and expertise, tk Uhde completed the concept development (FEL1) and basic engineering (FEL2) to assist in defining the final scope and budget. All necessary engineering was completed at thyssenkrupp Uhde's home office.

"We deployed a full management team to site to ensure that all four key project objectives – schedule, quality, safety and costs – were achieved," notes André van Zyl, the tk Uhde project manager. "We also collaborated with sub-contractors and suppliers who share our quality and safety ethos."

The customer gave thyssenkrupp Uhde the green light to commence with the project in October 2019 with scope of supply starting at the same time. Installation began in November 2021 and commissioning, which was conducted jointly by tk Uhde and the customer's technical NH_3 specialist, kicked off in October 2022, with project completion one month later.

"Our thyssenkrupp Uhde team is continuing to assist the customer as required from an engineering and construction point of view," affirms André van Zyl.

thyssenkrupp Uhde South Africa is the local subsidiary of thyssenkrupp AG (Business Unit Uhde) and was established in South Africa in 1959. The company is a leading EPC services partner for industrial plants and systems.

"Our solutions encompass the entire range of services for fertilisers, petrochemicals, oil and gas and others. Our experience spans 100 years and over six decades in Africa with an impressive reference list that extends throughout sub-Saharan Africa," he concludes.

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