

# DemcoTECH delivers environmentally-friendly sulphur handling system for Petronas RAPID project

*RAPID project: reclaim CV feeding onto the tail of the pipe CV.*



The storage and homogenization of bulk materials is a complex process, and, if not optimized, can have a significant negative impact on the efficiency of the overall bulk material handling process operation, says materials handling and niche process plant specialist, DemcoTECH Engineering.

According to DemcoTECH General Manager, Paul van de Vyver, the many challenges inherent in running efficient stockyards include ensuring a fully integrated design process between the stacker and the reclaimer to ensure suitable stockpile design for both the

*RAPID project: rail-mounted tripper/stacker.*



*RAPID project: rail-mounted portal scraper reclaimer.*

stacking and reclaiming operations. An efficient stockyard must have sufficient amounts of product available with a suitable volume distribution across the stockpiles in order to avoid compromising the reclaiming operation.

Such challenges highlight the importance, both of taking a holistic view to the design of a stockyard as an integral and critical part of the entire materials handling chain, as well as equipping it with the appropriate technology, adds van de Vyver.



*RAPID project: pipe conveyor provides enclosed conveying on open jetty.*

With more than 20 years local and international experience in bulk materials storage and handling design, South African-based DemcoTECH has been responsible for stockyard projects across a range of bulk materials industries, from the mining through to the fertilizer sector.

“Our long track record in developing stockyard facilities now covers Africa, the Far East and Eastern Europe,” says van de Vyver. “With our extensive design expertise, strength in powerful simulation techniques, FEA analysis and range of advanced technologies, we provide a customized solution tailored to the client’s needs. Such solutions include both enclosed and open stockyards, conveying materials on open and enclosed conveyor systems, mobile conveyors and stackers and ancillary equipment such as dust suppression and controls.”

The design of a 30,000-tonne sulphur stockyard and associated handling system was at the heart of a recent complex EPC granular sulphur handling contract awarded to DemcoTECH by the SYS & McConnell Dowell joint venture (SMJV). The contract for the sulphur handling system at the refinery and petrochemical integrated development (RAPID) project and associated facilities in Pengerang, Southern Johor, Malaysia, called for the design of a system that could serve the export requirements of solid products for the overall RAPID facility.

The RAPID project is being developed by Malaysian oil and gas company Petroliam Nasional Berhad (Petronas), through a project called Pengerang Integrated Complex (PIC). Southern Johor was chosen as the location for the project due to its proximity to deepwater port facilities and regional demand centres. The location enables easy transport of finished products

to the market.

“DemcoTECH was responsible for the design and engineering, international



*RAPID project: shiploader with telescopic chute minimizes dust generation.*

procurement, manufacture, fabrication, construction and commissioning of the entire system,” says van de Vyver. “The scope commenced from the offloading of sulphur, followed by controlled loading onto a stockyard conveyor stacker arrangement which stockpiled the material. The sulphur is then reclaimed, conveyed and loaded into 15,000dwt vessels.”

The main equipment supplied as part of DemcoTECH’s turnkey solution included a sulphur loading facility; a rail mounted tripper/stacker and a rail mounted portal scraper reclaimer; and the entire conveyor system, including the yard belts and the quayside shiploader conveyor feeding the rail mounted ship loader. The equipment was fully integrated with the jetty design.

“The design of the sulphur handling system had stringent environmental regulations,” says van de Vyver. “We therefore incorporated dust suppression on all transfer points, as well as including a multi-curved 2.2km-long pipe conveyor providing a fully enclosed conveying system for both the carrying and return sides of the conveyor along the entire open jetty.”

“Besides the major environmental benefit of enclosed conveying to prevent

mutual contamination of the product and the environment, the pipe conveyor resulted in the reduction in the number of transfer points.”

“The state-of-the-art telescopic chute on the shiploader eliminates spillages and dust generation.”

While the project posed various challenges such as language barriers, monsoon weather conditions and inclement weather patterns, a major risk to the engineering phase was sourcing the correct structural members in the region to suit the structural design of the equipment.

“We also followed a global procurement strategy in order to optimize cost-effectiveness without compromising on quality, with components and portions of equipment being sourced from five different countries,” adds van de Vyver. “In line with the requirement of the client, we maximized the use of local labour during the erection of the plant.”

DemcoTECH’s extensive track record in stacking and stockyard projects includes the mobile tailings disposal systems at Letšeng and Liqhabong Diamond Mines in Lesotho, and the Grindrod multi-product terminal at the port of Richards Bay and the manganese ore stockyard and reclaim system for Assmang works at Cato Ridge in South Africa. Further afield, DemcoTECH completed the detailed engineering of the entire materials handling system for a multi-product import terminal project at the Port of Ploce in Croatia and completed a major materials handling contract for the multimillion-dollar iron-ore import/export facility for VALE in Lumut, Perak, Malaysia.

## ABOUT DEMCOTECH

DemcoTECH Engineering is a specialist bulk materials handling and niche process plant company, offering services from concept design through to project completion to the power generation, cement, mining, metallurgical, manufacturing and port handling industries. Services include conceptual design, feasibility studies, design, engineering, procurement, expediting, construction and commissioning. Plant supplied by DemcoTECH includes troughed conveyors, air-supported conveyors, pipe conveyors, rail-mounted slewing boom stackers, pivot boom conveyors and mobile conveyors. After-sales services include spares, maintenance, refurbishments and operational readiness packages covering procedures, systems and workplace tools required to successfully operate and maintain a new or upgraded plant.