

INDUSTRY INNOVATION

State-of-the-Art Bitumen Terminal in Kwinana

When global energy company Puma Energy initiated plans for a pacesetter industry project in Western Australia, one of the key considerations was finding a construction manager in tune with its business values.

As Jacob Moodie of Puma Energy explains, "It's our business ethos to work closely with our customers and industry experts to create products that perform under some of the most diverse and demanding road conditions in Australia, and are committed to delivering industry-leading bitumen products and services that will help build roads that perform now, and in the future." With that commitment at the forefront of their thoughts, they turned to Lanskey Constructions to help bring the terminal project to fruition. Puma Energy had worked with Lanskey previously,



delivering a range of successful terminal projects (Mackay Fuel Import Terminal, Townsville Fuel Import Terminal and Kalgoorlie Fuel Depot), but this was the first bitumen terminal the two companies executed together.

"While not as large in terms of footprint as the fuel terminals," says Jacob Moodie, "this project was more complex due to the nature of bitumen and its requirement to be kept heated. Despite the additional process complexities the project was delivered on time and budget."

Completed in the fourth quarter of 2018, the Kwinana bitumen terminal is a new-to-industry, state-of-the-art facility with the capability to store and supply multiple grades of bitumen for the diverse needs of the road construction and maintenance industry across Western Australia. According to Lee Roadhouse, project

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“The terminal is a new-to-industry, state-of-the-art facility with the capability to store and supply multiple grades of bitumen for the wider Perth region”

manager for Lanskey Constructions, the project involved them working for two clients: Puma Energy, construction of the terminal; and Bitumen Storage Services (a joint venture between SAMI Bitumen Technologies and Puma Energy), construction of 3no. 6.3kT storage tanks and wharfline.

One of the main challenges included the installation of 1.6 kilometres of heat-traced and insulated wharfline piping on structural supports and bridges which traversed through three different stakeholders associated with the land, as well as live operating facilities, including a fully functional and busy port, Kwinana Bulk Jetty; while two new road crossings were required, incorporating 22 metres of buried wharfline piping encased in concrete culverts.

“Our key focus was on safety, quality, time and cost, along with the longstanding dedication and collaborative working relationship between Lanskey Constructions and Puma Energy.”

In addition to Lee Roadhouse, other key members of the team included mechanical superintendant Bill Cox, site manager Steve Crowe, E&I supervisor Michael Williams, Gary Finney (OH&S), Kieren Abbott (contract administration) and Isabel Reyes (site administration), with support from their WA office and state manager Steve Garces.

Over the past decade, Lanskey Constructions has successfully delivered multiple fuel and bitumen terminals across Australia as construction manager, with a combined value in excess of \$400 million. “With proven technical and commercial astuteness in this

specialised construction sector,” notes Lee, “Lanskey’s successful project delivery is the result of its robust systems and procedures. The core project team is highly adaptive.”

Protecting the Project’s Design Life

The other major company involved with the project, at a design and architectural level, was ACOR Consultants. “Our focus for the design,” explains structural engineer Kurt Jennings, “was in creating reliability and value for the end user. This meant that special care was taken to ensure that all materials were suitable for the environment, without requiring continual maintenance and repair. For example, corrosion allowances were included in the design of the pipe support network, which would ensure durability concerns created by the marine environment would not create adverse effects on the design life of the infrastructure.”

“Our drafting team worked closely with Puma Energy to fit the new pipe support system around the existing conveyor, piping and ancillary infrastructure present on the wharf. Due to the constraints of building around these existing structures, and the condition of the wharf itself, we often had to design upon existing pipe supports, which required extensive retrofitting to ensure that adequate strength was present in the supports.”

The construction team was also then required to work in incredibly constrained spaces to strengthen these supports while



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"All parties involved in the delivery were committed to achieving the best value for the client"



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efficient manner. The company's ongoing commitment to providing a flexible, pro-active approach, cost effective solution to each client whilst keeping safety and quality a priority is the reason for their success to date.

Recently successfully delivered projects include Pilgangoora Lithium Project Stacker and Conveyor structural concrete, Puma Energy Bitumen Plant structural concrete in Kwinana,

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maintaining the operational capabilities of the wharf. ACOR utilised a multitude of design tools to review how the supports would behave under serviceability, operative and ultimate conditions, working to limit deflections during operation to 10 millimetres in any direction. This included considering the typical permanent, imposed, wind and earthquake actions, as well as thermal effects from the pipe's expansion and contraction under operation.

"We were also required, as part of the design, to include loading from future piping installations that Puma Energy plan to make upon the supports, so as to limit the requirements for additional strengthening and retrofitting when those works are undertaken."

For the terminal structures, such as the control room, ACOR and MODUS (the architect) worked closely together from the early stages of the project to ensure that the design output was buildable and aesthetically suitable. "To best summarise the project," says Kurt Jennings, "the successes came about as a result of sustained and consistent communication between the client's team, the design team and the construction team. Early involvement of the typically 'later stage' teams in the preceding components of the project ensured that the later stages could run smoothly, as the most information would be available prior to their commencement. "In addition to this, ongoing cooperation and communication between the design team, construction team and client meant that the construction stage could be collaborative rather than combative, resulting in positive project outcomes for everyone involved.

"All parties involved in the delivery were committed to achieving the best value for the client and worked effectively to maintain expected quality standards and achieve the goals of reliability, longevity and functionality."

Global Services Across a Broad Spectrum

Puma Energy is a rapidly growing, global energy company with operations in more than 49 countries across five continents. It specialises in the supply of high-quality fuels, lubricants and bitumen products, and is known for its international integrated

supply chain that helps them source, refine, store and transport their products to customers swiftly and safely."

They entered the Australian market in 2013 with the acquisition of major fuel businesses including Ausfuel Gull, Neumann Petroleum, Matilda Petroleum and Central Combined Group; and their Australian bitumen operations also began in 2013 with the acquisition of the Caltex Bitumen business.

In 2015, Puma Energy expanded their Australian bitumen portfolio further with the acquisition of BP Bitumen, making them the largest bitumen supplier in the country. Puma Energy now has bitumen product and import facilities in Brisbane, Hobart, Melbourne, Perth, Sydney and Townsville, as well as a research, development and quality control centre in Melbourne." Lanskey Constructions is a leading construction company with a reputation for performance, quality and reliability. The company celebrated 30 years of operation in 2016 and is well placed to service the construction needs of any organisation.

Lanskey Constructions commenced operations in Queensland and initially focused on the commercial and industrial construction sector. Today, Lanskey Constructions is a leading, privately owned construction company with annual revenue in excess of \$150 million. With headquarters in Brisbane, and fully operating branches in Sydney, Melbourne and Perth, they can access an extensive network of industry professionals within their own organisation for project delivery anywhere in Australia.

"Our ability to ensure high levels of client satisfaction," says Lee Roadhouse, "has directly led to increased demand for our Design & Construct, Construction Management and Early Contractor involvement services. We have successful partnering agreements in operation with several high-profile clients, which allows us to achieve the most cost-effective outcome. Key elements in this process are the development of an open approach, common objectives and effective management of project risk. We invite you to visit the www.lanskey.com.au website for testimonials and to confirm extent of capability."



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