BRINGING WORLD-CLASS FUELS TO NEW ZEALAND

New Zealand's only refinery has started supplying the country with some of the world's cleanest burning and highest quality fuels, following the completion of the $180 million 'Future Fuels' upgrade.

Completed on time and on budget, the safety record of this project has been also excellent, with only one lost time injury during the entire construction period.

Thomas Zengerly (left), chief executive, NZRC, and the Hon. Pete Hodgson, minister of commerce and transport, New Zealand.

FUTURE FUELS *fast facts*

- 40 km of piping
- 130 km of underground cabling
- 1,600 electrical and instrumentation loops
- 4,600 pipe spools
- 500 tonnes of steel
- 250 pieces of equipment, including reactors, furnace and splitter columns
- 7 pre-assembled piperacks
- 2 pre-assembled process unit modules

"The massive project has been completed on time and on budget and I am grateful to the professionalism and commitment of all the staff and contractors who have worked so hard to bring New Zealanders the next generation of fuels."

Thomas Zengerly
Chief Executive, NZRC

Guy Buffey, HSE manager, FW.

We are the EPCm contractor for this project, which enables the refinery to make diesel and gasoline which meets New Zealand's new product specifications which come into force on 1 January 2006, reducing the sulphur content of diesel to 50 ppm and the benzene content of petrol to 1%.

This project has been a major investment by the New Zealand Refining Company (NZRC), whose major shareholders include Shell, ExxonMobil, BP and Caltex, all of whom are also Foster Wheeler clients in their own right.

"As always, HSE has been the project's first priority from day one of the FEED stage and this emphasis has continued throughout the main EPC phase and into pre-commissioning and commissioning. The shareholders, our management and the project team have all worked hard to make sure this safety first strategy was clearly understood and actively enforced throughout all the project phases.

"Our safety team, led by Guy Buffey, implemented our new CORE behavioural safety programme during the construction phase of the project and also established a partnering arrangement with New Zealand's Occupational Safety and Health Service."

David Williams
Project Manager, Foster Wheeler

NEW ZEALAND FUTURE FUELS

...a huge logistical exercise...

"The start-up of the Future Fuels Project in August means that New Zealand will meet the new product specifications by year's end and thus the lowering of greenhouse gas emissions. This accomplishment has only been possible through hard work and the close working relationship between Foster Wheeler and NZRC."

Tom Loppnow
Project Manager, NZRC

Modularisation

Engineering and procurement was performed by our Thailand operation at Sriracha. During engineering constructability reviews, a strategic decision was made to modularise and pre-assemble major parts of the process units to minimise total installed cost.

Engineering had to take account of specific New Zealand legislation relating to seismic loading, design verification and hazardous area inspections and classifications, so considerable effort was directed towards making sure that our Thailand team and all subcontractors were fully conversant with these specific requirements.

Southeast Asia proved to be the most economic source for most of the pressure vessels and manufactured equipment, as well as for pre-assembly and modularisation.

The construction management team and the NZRC board of directors.

For the inside battery limits units, seven pipe racks and two major process unit modules were designed, taking into account the challenge of shipping, transportation and lifting the modules into the Marsden Point refinery.

Parallel working

The modules were fabricated at Laem Chabang, not far from our Sriracha office. This meant that on site civil works could progress in parallel which enhanced both safety and work productivity. Offsite modularisation also significantly reduced the manpower requirements in New Zealand during a period where concurrent projects put skilled labour trades at a premium.

A great performance

The module fabricators performed very well, in terms of safety, cost and schedule and quality.

A major milestone in the upgrade was reached in September 2004 when 32,000 tonnes of pre-assembled plant and equipment arrived at Marsden Point in a single shipment from ports in Thailand, Japan and Indonesia. This shipment contained the bulk of the new processing units and took six days to unload.

Before the ship arrived, the site contractors had been fully briefed about the material movement, pre-dressing and logistic plans. The assemblies and modules had to be unloaded, transported and installed within in a tight construction period of only 10 weeks.

The outside battery limits works within the refinery included significant amounts of underground cabling, substation modifications, piping installation and a series of shutdowns. All the works were completed on or ahead of schedule.

Teamwork

The modularisation strategy and the management of the logistics have been major ingredients in the project's success. The other key ingredient, as always, is teamwork and co-operation.

The integrated NZRC and Foster Wheeler team has worked together to meet all of the project's objectives and also to finish before the rainy season!

Celebrations

The refinery officially launched this successful project on 25 August 2005, and celebrated with a fun-filled public open day on 28 August 2005.