PAR / PAU NEW PLANT PROJECT - NEW ZEALAND

The New Zealand Refinery Company Limited (NZRC) the only refinery in New Zealand selected Foster Wheeler in 2003 to provide EPC services for construction a new plant to produce cleaner fuel. The Project is to produce low sulphur diesel by treatment of gasoil by hydrodesulphurization (HDS) in a new HDS plant using Shell Global Solutions International technology. Throughput of the new unit is 3,600 tonnes per day (tpd) at less than 50 parts per million (ppm) of sulphur.

There were seven PAR sections, each weighing 150 tonnes, and two 250-tonne PAUs. Each PAR section was approximately 18 metres long by 12 metres wide and 11 metres high. Four sections formed the piperack for the HDS unit and the remaining three sections formed the piperack for the BRU. The two PAUs contained vessels and exchangers as well as piping. These were approx 12 metres by 10 metres and were 12 metres high.

To meet the fixed heavy lift ship arrival time, the module yard had to meet a very aggressive five month schedule. Over 450,000 man-hours were expended to produce the pre-assemblies, complete with the instruments, wiring and all the testing and functional handover information.

At peak the yard was completing over 700 WDI (weld diam inches) per day. Around 11 kilometres of pipe was installed.
Meeting this aggressive schedule would not only achieve the planned shipping date but would allow more time for field erection, where schedule and quality risks still existed due to shortage of manpower and skills.

Scope
Steel work, piping, electrical, instrument, painting, fireproofing
Customer
Foster Wheeler
Employer
New Zealand Refinery
Location
New Zealand
Steel Tonnage
Approx. 2,000 Tonnes.
Pipe Work
Approx 11,000 meters
Approx 110,000 DB
Completion Date
August 2004

ATHABASCA OIL SANDS PROJECT – CANADA

Athabasca, a remote oil sands region in Alberta, Canada, holds immense mineable bitumen deposits. Shell's Scotford complex near Fort Saskatchewan (near Edmonton) is one of the locations where raw bitumen is pre-refined to synthetic crude oil.

Unithai was chosen by Agra Birwelco (later Amec Birwelco) to supply heater steelwork for the $400 million refinery modification project, aimed at increasing production at the Scotford complex to 150,000 barrels day.

The plant uses hydrogen addition technology to Process the low viscosity crude oil from the Muskeg River Mine into a wide range of premium quality low sulphur synthetic crude oils.

Unithai's scope of works covered the fabrication of radiant section steelwork for a pair atmospheric and a pair vacuum column feed heaters. Each pair of heaters shared a common stack.

Anchors for ceramic fiber blanket and modules were welded to casing steelwork at Unithai, but the decision was made for all lining to be carried out at site. Due to the uniquely low corrosive atmosphere at site, the client specification called for no steelwork to be painted.
Vancouver was chosen as the point of entry into Canada. Packing frames were designed to keep dimensions within the limits of the rail corridor, as the cargo was transported from Vancouver across the Rockies to its Saskatchewan destination.

Steel Tonnage
680 Tonnes
Owner
Shell
Employer
Amec Birwelco
Location
Attabasca, Canada
Completion Date
March 2001

PUERTO LA CRUZ REFINERY - VENEZUELA

Unithai location in the deep sea port of LaemChabang once more proved to be the key to securing a project, when Kvaerner Huertey Italiana selected the company to supply 5 modularized vertical cylindrical heaters (a diesel, charge, stripper, reboiler, fractionator, and debutanizer) for PDVSA's Puerto La Cruz refinery expansion.

Each of the heaters' radiant sections were completely assembled at the Unithai's factory prior to delivery with radiant coils (2no. of SS321 stainless steel and 3no. of A-106 carbon steel) and internal ceramic fiber lining installed.

The largest radiant module was 18.9 m long, 6.8 meters in diameter, and weights over 90 tonnes. In addition to the radiant section, Unithai fabricated 11 modules for 5 heaters, two of which were equipped with stainless steel coils.

Steel Tonnage
380 tonnes
Shipping Weight
1,013 tonnes
Coil Material
A-106, SS321
Owner
PDVSA/ JGC/ Chiyoda
Employer
Kvaerner Huertey Italiana
Location
Venezuela
Completion Date
April 2002

BALONGAN BLUE SKY PROJECT – INDONESIA

In 2003, as part of the national environmental improvement program known as the “Blue Sky Project”, Pertamina, the National Oil Company of Indonesia commenced the project to madernize the Balongan Oil Refinery by selecting Toyo Engineering Corp (TEC) JV with PT Rekayasa Industri as EPC contractor.

Furnace Engineering Incorporation was awarded the contract for supply of fired heaters for this facility, which will produce unleaded gasoline using the UOP process.

Unithai was chosen by Furnace Engineering to fabricate 4 VC radiant modules, 8 convection Modules and coils for the UOP platformer.

Coil materials chosen on this project comprise of A335 P9, P22, P11, P5 and A106 Gr. B.

The size of the 4 radiant modules range from 4.5 m diameter by 10 m high to 8.6 m diameter by 18m high will be shipped in a full module with approx total 340 tonnes for four units.

Steel Tonnage
214 tonnes
Shipping Weight
929 tonnes
Coil Materials
A106, P9, P22, P11, P5
Owner
Pertamina / Toyo EC / PT Rekayasa Industri
Employer
Furnace Engineering
Location
Balongan, Java, Indonesia
Completion Date
April 2004

METHANEX CHILE IV PROJECT – CHILE

In 2003, the world largest methanol production and marketer, Methanex, Placed orders with Lurgi to expand its production capacity up to 800,000 TPY at its Punto Arenas methanol production hub in Chile in a project known as Methanex IV.

Lurgi approved Boustead International Heaters Ltd. as specialist heater supplier,

who in turn selected Unithai to supply, fabricate, modularize and test the methanol-reforming unit.

This modularized fired heater consists of 2 trains, the Steam Superheater and the Feed Gas Superheater, each with individual radiant and convection sections, and a common WHRU and stack. The Steam Superheater radiant and convection coils are fabricated in accordance with and stamped with the ASME “S” stamp.

The project called for the application of ceramic fiber blankets and modules, as well as castable refractory and concrete sleepers.

The two radiant modules are shipped with dimensions of 8m wide, 11m long, and 22m high, each weighing around 280 tonnes.

Steel Tonnage
414 tonnes
Shipping Weight
2,500 tonnes
Coil Materials
A106, SS316, SS304, P22, P91
Owner
Methanex
Employer
Boustead Int’l Heaters
Location
Chile
Completion Date
April 2004

CALTEX KURNELL REFINERY – AUSTRALIA

As part of a plan to replace aging equipment at its New South Wales refinery, Caltex called on Foster Wheeler Fired Heaters to supply a large crude oil VC heater.

Unithai was chosen as supplier to fabricate the heater, which consisted of the P5 radiant coil, the 11m diameter radiant Section, shipped in 12 no. 30˚ segments, two 80

Tones lined convection modules (P5 coil), secondary steelwork and the heater stack

In order to ensure good fit at site, extensive trial assembly was carried out on radiant section walls, arch and burner floor, as well as the assembly of all platforms.

Steel Tonnage
145 tonnes
Shipping Weight
335 tonnes
Coil Materials
P5
Owner
Caltex
Employer
Foster Wheeler
Location
Australia
Completion Date
January 2003

OHANET GAS PROCESSING PLANT-ALGERIA

ABB Lummus Global together with Petrofac International of the US confirmed it has been awarded an order valued at $ 574 mm to design and build a natural gas processing plant for the Ohanet gas fields in Algeria. The order was placed by a consortium led by BHP Petroleum of Australia.

Under the terms of the contract, ABB is responsible for the design, procurement and construction of the plant, which will process natural gas into LPG and condensates used in fuel, chemical feedstocks, and other applications. The plant will have an output of 30,400 bpd of condensate, 27,700 bpd of LPG and 665 mm cfpd of pipeline quality gas. Production from the plant is expected to begin in late 2003.

The Ohanet fields lie on the northern edge of the Sahara desert, about 1,300 km south-east of Algiers and 100 km west of the Libyan border.

Steel Tonnage
150 tonnes
Owner
BHP Petroleum
Employer
Boustead International
Heater
Location
Algeria
Completion Date
December 2001

CRUDE DISTILLATION UNIT #5 – KUWAIT

As part of the $310 million fast track project to re-build capacity destroyed or damaged in the June 2001 explosion at Kuwait National Petroleum Company's (KNPC) Mina Al Ahmadi refinery,

The main contraction consortium of Fluor Daniel (USA) and SK Engineering & Construction awarded the replacement of crude distillation unit number 5 (CDU#5) to Boustead International Heaters (BIHL), as part of the $70 million second package.
The work called for the replacement of the damaged fifth crude distillation unit, originally built by IHI in the early 1980'S. In fact the replacement unit was designed and built to sit on existing foundations, which required a high degree of fabrication accuracy.

Unithai's scope of supply included detailed design, procurement, fabrication, corrosion protection, installation of ceramic fiber and vapor barrier on the radiant casing, installation of castable refractory on stacks and ducting and packing.

Steel Tonnage
450 tonnes
Owner
KNPC
Employer
BIHL for Fluor Daniel / SK E&C
Location
Mina Al Ahmadi, Kuwait
Completion Date
February 2002

CRUDE DISTILLATION UNIT #3 – KUWAIT

As part of Kuwait National Petroleum Company's (KNPC) on-going development plans for its Mina AI Ahmadi refinery, ABB Lummus Heat Transfer (LHT) was called on to design and install a new crude heater, to replace the existing Crude Distillation unit known as CDU#3

ABB LHT chose Unithai to fabricate and supply the heater, comprising of P9 radiant coil, 30 no.24 meter long unlined radiant panels, concrete lined ducting, a concrete lined stack, secondary steel-work and two convection modules with P9 coil.

The larger of the two concrete lined convection modules was 25 meters long x 5 meters high x 5 meters wide and weighing 125 tonnes.

Steel Tonnage
450 tonnes
Shipping Weight
912 tonnes
Coil Material
P9
Owner
KNPC
Employer
ABB Lummus Heat Transfer
Location
Mina AI Ahmada, Kuwait
Completion Date
June 2001

THAI OLEFINS EXPANSION PROJECT – THAILAND

Thai Olefins Company (TOC) selected Kellogg Brown & Root (KBR) and Chiyoda to provide EPC services for the expansion of its Rayong ethylene production capabilities at.

The facility is built suing KBR's ethylene process and will increase production at the plant by 300,000 tonnes per annum through the addition of 5 cracking furnaces.

Unithai was selected by Chiyoda to supply a total 30 convection modules, the larges of which weighing some 60 tonnes.

The scope of supply included detailed designed, procurement, fabrication, corrosion protection, installation of castable refractory on the casings, testing, packing and delivery to site.
Coil material selected in this project included ASTM A106 Gr. B, A312 TP 310 and TP 304, A335 P22 and Centrifugally cast – HP40 modified + Nb.

Steel Tonnage
267 tonnes
Shipping Weight
1,630 tonnes
Coil Materials
A106, SS310, SS04, P22
HP40 modified + Nb
Owner
Thai Olefins
Employer
Chiyoda Corp
Location
Maptaphut, Thailand
Completion Date
December 2003