

Outside Interconnecting Pipelines Project for Reformer and Aromatics Complex II
Engineering, Procurement, Construction (EPC),
Map Ta Phut Industrial Estate, Rayong, Thailand, 2005-2007



Client

The Aromatics (Thailand) Pcl (ATC)
 (The ATC and RRC are amalgamated under name:
 PTT Aromatics and refining Co., Ltd. - Since 27.12.07)

Project Management Construction (PMC):

Foster Wheeler International Corporation

Constructed by

Christiani & Nielsen (Thai) Pcl.

Introduction

ATC wished to build a new aromatic plant (No 2) at RIL Industry Estate which included the requirement for pipelines to connect to existing aromatics plant (No1) as well as existing facilities at Map Ta Put Industrial Estate.

Project Description

The scope of work comprises the design, procurement and construction modification of existing facilities, buried pipeline and development of new facilities to support pipelines between ATC complex I & TTT and ATC complex II that consists of:

- New pipe rack & Pipe bridge and Modified existing pipe rack & pipe bridge
- Laying and welding Aboveground pipelines
- Laying and welding Underground pipelines by direct buried method and jacking sleeve method
- Pipelines Construction Total **15 pipelines**, diameter from 4" to 18", with the total length of **152,350** meters
- and pipe connection welding of **182,279 DB.**
- The pipelines in Map Ta Put Industrial Estate and RIL Industrial Estate were built above ground on pipe racks and pipe bridges. However, due to the environmental concerned the pipeline between the two Industrial Estates have to be buried underground along the length of 2.5km corridor with the approximately width of 6500 mm. The underground pipelines had to cross 9 public roads and canals by inserting through underground concrete and HDPE sleeves.



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Design

The design work was subcontracted to Dorsch Consult Asia Company Limited

New piping and structure subject to corrosion through contact with process and utility fluids shall be designed to give an operating life of 20 years.

All other materials shall be suitable for long term installation in the tropical maritime environment existing at site. In all cases materials and surface coatings shall be in accordance with the Project Specification.

Procurement

- Pipe:

DIA. 14" to DIA. 4" and smaller will be Seamless (SMLS) as per ASTM A106 Grade B

DIA. 18" and larger shall be manufactured by the Electric-Fusion-Welded (EFW) process as per ASTM A672 Grade B60

- Fitting and Bending: As per ASME B31.4

- Coating: Uny Marine Coated for Aboveground and Three Layer Polyethylene (3LPE) for Underground pipelines

BOI

Owner has requested the BOI privilege to BOI import Equipment and heavy materials.

Safety

No lost time accident, Total safety man-hour = 1,317,239

Construction

Above ground pipeline were placed on the pipe racks and pipe bridges.

Pipe Rack. ; Total pipe Rack of $300+66+119 = 485$ No. were constructed (Including Site 3 & 7)

Pipe Bridge. Total pipe bridge of $5+8+2=15$ No were constructed (Including Site 3 & 7)

Modified existing pipe rack and Pipe Bridge the total weight of $750,050+ 209,025 \text{ kg} = 959 \text{ Ton}$

Above ground pipeline with the total length of **114,484** meters Underground Pipeline with the total length of **37,867** meters

The 15 underground concrete sleeves, diameter from 0.493 mm to 0.600 mm were built for 6 crossings by Pipe Jacking Method. While 15 underground HDPE, diameter from 0.355 mm to 0.710mm were built for 3 crossings by Horizontal Directional Drill (HDD) Method.

Pipe Cleaning and Hydro Test

After the pipelines were connected, the internal surface of pipes were cleaned by using high pressure air pushing cleaning pigs through the pipeline. Then hydrostatic static test were carrying out by pumping clean water into the pipeline and the pressure were increased to 1.5 time of design pressure of each pipe in order to ensure that there was no leak in the pipeline.

Date of Commencement:

October 2005

Date of Completion:

October 2007