

Soluforce lays Sumatra pipeline in a jiffy

It took only 12 days to install a 5.2-km 6" pipeline in a 1.5 metre deep trench using open cut technique.

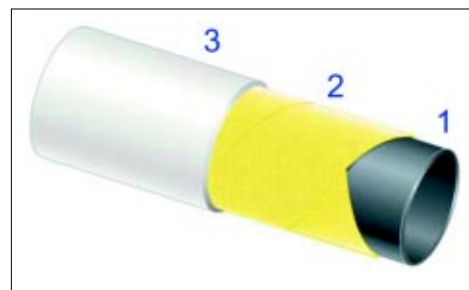
Conoco Phillips is expanding its gas production at the Suban field in South Sumatra. Gas from the field is currently sold to Caltex's Duri steamflood project located in central Sumatra.

A full gas plant is installed including all in and out going pipelines. In order to reduce costs, efficient installation and choice of the right products is most important. One of the fluid streams of gas production is effluent water, which is separated from the produced gas. The ef-

fluent water is known for its corrosive behaviour and therefore typically special grade steel pipes are needed or a non-metallic solution. In this case the Soluforce® Reinforced Thermoplastic pipe system was selected. The Soluforce® system combines the pressure rating of steel pipes with the corrosion resistance and easy handling of plastic pipes.

The Soluforce® pipe system is especially designed for oil and gas production in any environment. It comes in road trans-

portable coils of 400 metres. The pipes are interconnected by electrofused inline couplers and terminated with a steel flange or weld stub for easy connection to the existing pipe system. The system is simple to install using only light equipment and a small crew. After installation they will perform without any maintenance because the pipe is corrosion resistant and remains smooth for the full lifetime.



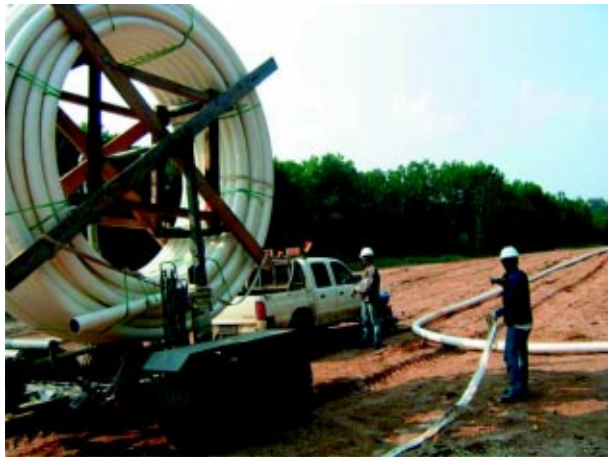
The Soluforce® pipe consists of three layers being a standard PE pipe grade liner pipe (1) reinforced with synthetic fibres (2) and a specially design PE outer protection layer (3). The liner pipe ensures a corrosion resistant fluid tight containment, the reinforcing layer gives the system the ability to take up the high-pressure rating and the outer layer protects the pipe from abrasion and the environment.

The Sumatra project consists of a 5.2- km 6" wastewater pipeline with an operational pressure of 62 bar (920 Psi) at 50°C (122°F). The pipeline Right of Way (Row) ran from inside the existing plant

Sumatra jungle to a newly drilled water injection well. The ROW inside the plant included several crossings (two major roads, two draining canals, several cables), outside the plant the RoW ran below two road crossings and through a minor river and 7 creeks all located between large steep hills. The pipeline is installed in a 1.5-metre deep trench.

The ease of handling and installation of the Soluforce® system particularly comes handy in heavy and difficult terrain. The Soluforce® pipe is very light and easily lifted by hand. For uncoiling only an uncoiling trailer and a pulling vehicle are required. Depending on the soil condition the pulling vehicle is a standard 4WD for easy terrain or a shovel for swampy ground or loose sand areas. Normally the trailer is pulled along the RoW uncoiling the pipe on the ground. However the uncoiling can also be performed by fixing the trailer and pulling the pipe over the RoW. In case of rocky ground wooden logs or rollers will protect the pipe for damages.

The creeks in the Sumatra project could not be crossed by the trailer and also the steep hills caused problems because of the



slippery ground. In this case the ground was sand and clay so the pipe could be pulled over the surface without any problems. On steep hills the uncoiling trailer was stationed at a flat spot approximately 400 metres away from the end of the last installed pipe. The pipe-end of the new coil was fixed to a dozer with caterpillar tracks, which pulled the pipe uncoiling the pipe from the reel.


For crossing the roads outside the plant the trench depth was increased to 2.5 metres to anticipate for future road constructions. Furthermore half pipe formed concrete blocks were used to stabilize the pipe at the river and creeks making sure the pipe stays fixed in its place also during the raining season. Crossing the river and the roads using an increased trench depth and bends do not need special fittings. The flexibility of the pipe permits any direction change as long as the bending radius is larger than 3 metres.



The full installation took only 12 days from the uncoiling of the first pipe until welding of the last fitting, including trenching and backfilling of the pipeline. The actual uncoiling and welding time is much less, however the civil works took the full installation time.

The Soluforce® pipe was terminated with stainless steel ANSI 6" 600# rf flanges. A corrosion free connection is made by using an insulation set.

The non-metallic, resilient and smooth material of the Soluforce® pipe system ensures continuous operation of the pipeline, without any maintenance.

ConocoPhillips can now focus on production of the oil and gas and will not be disturbed by failures due to bad performance of the pipe utilities. 

PetroMin thanks Soluforce for this contribution.

ENQUIRY NUMBER: 