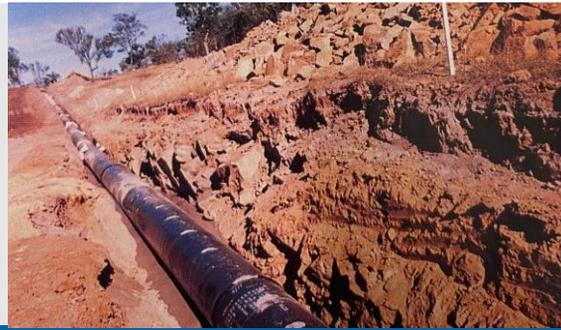


Tarong Augmentation Project QLD

Thirsty Power Station



Objectives:

Australia's ongoing drought in 1995 was one of the most severe on record with Queensland one of the worst affected states. Queensland's Department of Primary Industries' Drought Bulletin' of 11 May 1995, lists 41 shires, 5 part shires and 782 individually drought declared properties, in all, 37% of the state.

As far back as mid 1994 it was recognised that if the drought did not break in the upper Boyne River catchment during the 1994-95 wet season, it would affect far more than the farming and rural communities. The Upper Boyne River catchment provides water for the Boondooma Dam, which is the water storage for Tarong Power Station. This power station, owned and operated by AUSTA Electric, has four 350 MW generating units. It is one of the state's most important power stations, at the time, supplying about 40% of Queensland's electricity needs. The loss of this generating capacity would be devastating to all of Queensland's thirsty Power Station industry. The Boondooma dam has a capacity of 212,000 megalitres, and by mid 1994, the storage had dropped to 42,000 megalitres, some 20% of full capacity. With the power station and evaporation consuming around 1% of the storage capacity per month, continuation of the drought meant the power station would be out of action in 18 months.

Challenge

Planning for an alternative water source began immediately, with the construction set to start in March 1995, should the wet season fail again. The most economical source of water for the power station was the upper areas of the Wivenhoe Dam, below the Somerset Dam wall, some 78km from the Tarong Power Station storage. Due to the critical nature of this pipeline, the system specified was Steel Mains' SINTAKOTE® mild steel cement-lined pipe with the unique SINTAJOINT® rubber ring jointing system. AUSTA Electric through its construction contractor Leighton Holdings (Leighton Contractors), began construction of the pipeline in mid March 1995 following failure of the wet season to provide sufficient water to guarantee uninterrupted operation of the power station. The design capacity of the pipeline is 880 l/s (76 ML/day) requiring four pump stations operating at pressures up to 4.4 MPa.

The project was fast tracked to meet the tight schedule. Tubemakers Water - Steel Pipeline Systems (Steel Mains) worked closely with AUSTA Electric and Leightons to ensure each pipeline component was delivered in sequence.

Solution

Wherever possible, all pipeline components have been standardised, so that even on a project of this size and complexity, there are only a few different size SINTAJOINT pipe ends being inspected prior to construction fitting types. Where required, special fittings have been prefabricated to maximise the advantage of the SINTAJOINT rubber ring joint system and thus minimise construction time on site. All pipes, fittings and specials have been manufactured by Tubemakers Water (Steel Mains) – Steel Pipeline Systems manufacturing facility at Wacol, Brisbane. The SINTAJOINT pipes were supplied in 13.37m effective lengths. These extra long pipes saved Leightons and the contract principal considerable time in construction. The 13.37m long pipes reduced the number of joints to be made in the field by approximately 12%, or about 700 joints in total on a project of this size. To ensure minimum disruption to pipe supply and the correct transportation and handling of the pipeline system components, Steel Mains - Training Enterprise designed a special training programme for the transportation company involved in the project. The program was a great success. The project was thus able to continue at great speed, with security of water supply for the Tarong Power Station and the energy needs of Queensland met on time with the potential of losing the main power source averted.

Tarong Augmentation Plant

Client AUSTA Electric
Designer Gutteridge, Haskin & Davey

Construction Leighton Contractors

Pipeline 49,5km of 900OD x 6mm w.t.
24km of 900OD x 8mm w.t.
4km of 660OD X 6mm w.t.
SINTAJOINT MSCL Pipe
700m of 900OD x 12mm w.t.
Ball & Socket Joint MSCL Pipe

Construction Period: March 1995 - November 1995