



**Companie(s) :** Clough Nuigini  
**Owner :** Oil Search Limited  
**Engineering consultant :** Kellogg Brown & Root

**Subsidiary(ies) :** Freyssinet Australia

**Beginning of works :** 03/2005  
**End of works :** 11/2005

### Description of the work :

As part of the ongoing expansion in the S.E.Mananda area, Oil Search Limited required a bridge to span the Hegigio River to connect a new pipeline to the existing Agogo Production Facility. Clough Nuigini were awarded the contract to construct a single span suspension bridge 470m in length, launch pipes across the bridge and connect to the new pipeline.

### Freyssinet mission :

Freyssinet Australia and Menard Bacý were awarded the contract to construct the permanent and temporary ground anchorages, install the suspension, stay and wind cables, launch the deck after having specified the methods, and finally, to launch the pipeline. Designed by Kellogg Brown & Root, the structure comprises two towers, one 36.5 m high at the southern end and the other 5 m high at the northern end, with the main suspension tendon consisting of two tendons of 43 galvanised strands as well as restraining and wind-bracing stays attached to each of them. Working with Freyssinet's technical department, Freyssinet proposed the adoption of a single 86-strand carrier tendon rather than two 43-strand tendons, a solution that offered a number of advantages, in particular that of obviating the need for potentially difficult operations involving load transfer between the two tendons. A 30m high temporary access tower was assembled on the southern abutment in order to facilitate the assembly of the final main tower and to fabricate and then launch the structural steel deck elements of the bridge. Suspension cables and backstays were installed using winches. A specially designed outhaul/backhaul trolley system incorporating karabiners and linked cables was installed across the gorge using helicopters to create a concertina arrangement, thus enabling the main carrier tendon to be erected strand by strand. Freyssinet's patented Isotension system was used to tension each cable individually as installation proceeded. The deck was progressively launched using two L180 launching rams supplied and operated by Freyssinet. As the incremental launching of the main bridge deck progressed, the wind-stays were launched from a bank of 74 No. cable reelers and assembled with cable clamps and connecting bracing cables. The stays were eventually secured to the anchorages and stressed to achieve the desired tension and alignment for the structure. The final stage consisted of launching the pipes. These were butt-welded at the southern abutment and installed on the bridge in 36 m sections using a winch and a single-strand ram.

