

**KAWASAKI STEEL TECHNICAL REPORT**

No.10 ( December1984 )

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**Application of Large Diameter UOE Steel Pipe Pile to Offshore Structure**

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**Synopsis :**

Taiwan Power Company is constructing a steam power plant of 4 million kW at the coastal area situated 30 km north of Kaohsiung which is the biggest industrial area in Taiwan, R.O.C. The installation of two generators with a capacity of 500 000 kW each was completed and now they are operating. Engineering division of Kawasaki Steel Corporation, through an international tender, was awarded a contract to construct an offshore berth facility for unloading coal required for the plant operation. This facility consists of a 910 m long approach trestle and a platform foundation for the coal unloader. Large diameter and thick wall UOE steel pipe piles were applied to the foundation work. This paper describes the civil engineering aspects of the steel pipe pile foundation used in this construction project.

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# Application of Large Diameter UOE Steel Pipe Pile to Offshore Structure\*

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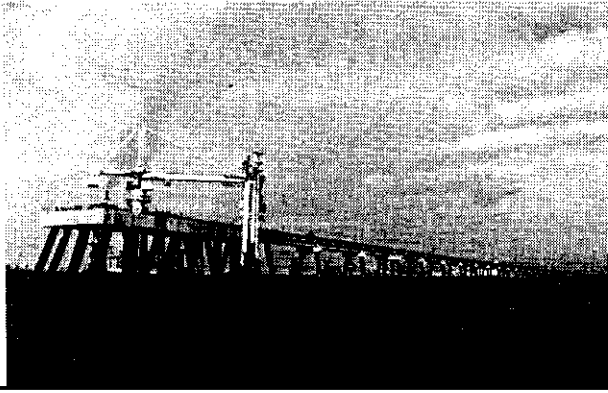
particularly required for driving batter piles ( $18^{\circ}26'$ ). Furthermore, it was necessary to ensure depths of penetration of more than 5 m in fine sand layers with standard penetration test  $N$ -values of more than 40 and vertical bearing capacity of 1 470 t.

In addition to the above-mentioned items, this construction work included concrete placement in open

discussion and only the three technical points mentioned above are presented.

## **2 Scope of Work**

### **2.1 Size of Facilities**



tropical cyclones during the months from June to August. Between April and May and again in September the direction of wind changes and the climate is relatively mild. Although winds blowing from north-northwest have no great effect on waves, winds from southwest and west have long fetches, and waves often develop into swells. Although the waves caused by ordinary winds are 1 m or less in height, waves (1/3-significant waves) under the influence of typhoons are about 2 to 3 m high.

(2) Tides

Table 3 gives the tidal range based on past observa-

Classifi-	Eleva- tion		N-Value
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(3) Steel pile driving

It took a large pile driving vessel about 20 days to sail

and tandem submerged arc welding was carried out. In selecting this welding process, laboratory tests and field tests were conducted beforehand and the validity of this

#### 4 Steel Pile Driving (on the Sea)

There were three main technical problems encoun-

