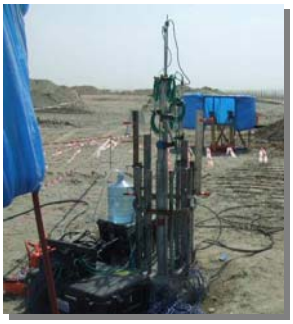
LOADTEST
O-Cell® Technology in the Sultanate of Oman

Project:	**Sohar Aluminum Smelter**
Location:	Sohar, Oman
Client:	Bechtel Co.
Foundation contractor:	STFA
Project Description:	



600mm pile under test

1000mm pile under test

Summary:

Oman is located at the Northern end of the Arabian Sea and the new smelter is sited just inland from the Gulf of Oman, halfway between Muscat and Dubai. Unlike many other countries in the region, Oman is not a major oil producer. To boost the economy, the country's government is encouraging foreign investment in light and heavy engineering such as aluminum smelting.

Aluminum is the world's most abundant metallic element, commercially available in the form of bauxite. With the World market in metals booming, the aluminum industry requires more output to meet the demand. It is hoped that the construction of a new aluminum smelter in the Sultanate of Oman will meet much of the industry needs.

Project:

An aluminum smelter comprises three main sectors: Carbon, Potlines and Casthouse. It is in the Potlines that the aluminum is actually produced. The new Sohar Aluminum Smelter under construction in Oman will feature the world's largest Potline. The $1.4 billion project will contain 360 pots able to produce 350,000 tonnes of aluminum annually. In addition to the potline, this Bechtel project includes a carbon plant, a metal casting facility, a port and facilities for shipping and storage. The plan is to have "hot" metal flowing by mid 2008.

The original pile testing program conceived consisted of specifying traditional top-down static load testing. However, constraints such as availability of reaction beams in a country outside their normal field of operations lead STFA to consider bi-directional testing as a more cost effective solution for the static load testing requirement for this project.

Bi-directional load test arrangement:

Six preliminary bored piles were required to be tested at this site, three 600 mm and three 1000 mm diameter bored piles into weak sandstone rock at depths up to 35 metres.

The O-cell® configuration in the smaller 600 mm pile size used a pair of 230 mm O-cells to provide the maximum test load requested of 7.5 MN.

Two 405 mm O-cells were used in the 1000 mm test piles to provide the required maximum test loads of up to 20 MN.

Summary:

The testing of six piles on our first visit to the Sultanate of Oman, three of which were small diameter bored piles, was a success. Proving that size, loads and numbers of tests are no obstacles for bi-directional testing.

Sohar Aluminum Smelter, opened June 2008

Source: www.power.alstom.com