

Abu Dhabi



TRM and BAUER complete a successful pile test

Technology experts Linde Group and the Abu Dhabi National Oil Corporation (AD-NOC) are building two giant air separation plants in Abu Dhabi (United Arab Emirates) through Elixier, the joint venture company they have set up. The total investment will be some 800 million US dollars. The new plants will be connected to the local supply and pipeline network at the end of 2010 and from then on will be supplying nitrogen for pumping natural gas. Deep foundations are being used to ensure the safety of the site and the call for tenders envisaged drilled piles for these. Clearly it had to be shown that there were advantag-

es to using ductile piles. Drilled piles contain a high proportion of concrete and this might cause logistics problems in the UAE. Also, at temperatures of up to 55° C the concrete could become difficult to process so the mixing water would have to be cooled. After numerous meetings with the authorities and with specialist foundation engineers, TRM, together with Bauer International FZE of Abu Dhabi, carried out a pile test in May which attracted widespread attention. The local building authority, the Abu Dhabi Municipality, called for a working load of 100 tonnes per pile with a safety factor of 2.5, i.e. a test load of 250 tonnes. The DN 170 mm ductile pile was driven into the ground by a hydraulic hammer (working weight of 4,200 kg) applying an impact energy of 6,000 kN. The criterion set for driving (20 sec/1 cm) was met at 12 metres. There was then a hydraulic pile test which gave excellent results. When the working load of 1000 kN was reached, we had a settlement of 9.46 mm, which was equivalent to a permanent settlement of 2.03 mm once the load was removed and once again confirmed the outstanding properties that ductile cast iron has as a material. These results have now created a very good background against which customers, planners and general contractors will be able to see the ductile pile as a serious alternative to drilled piles.

