

SAUDI KAYAN PROJECT, PETROCHEMICAL WORKS CONSTRUCTION.

Project Outline.

The newly formed *Saudi Kayan Petrochemical Company*, will soon begin construction of a state of the art petrochemical complex in the industrial city of Jubail. The annual capacity will exceed four million tons of chemical products, some of which will be manufactured for the first time in the Kingdom of Saudi Arabia.

Gage Technique International were approached to undertake the provision and installation of an instrumented system to monitor the behaviour of a pile under load test. It was decided that two piles were to be tested and a total of 45 instruments were supplied along with the services of a strain gauge specialist to oversee the installation.

Installation Overview.

Above Left: This photo shows the preparation of the reinforcement cage prior to strain gauge installation.

Above right: Mounting blocks are welded to the reinforced cage in preparation for the mounting of each gauge. A custom made mounting Jig is used to ensure the spacing is accurate and minimal time is lost.



Above Left: The gauge is mounted on the blocks using 4 screws, two at each end.

Above Right: After each gauge is mounted it is checked for response using a portable readout unit. It is then tensioned to its datum frequency.



Above Left: The fully reinforcement instrumented cage ready to be lifted into the borehole. Visible at the top of the reinforcement cage are the sensor cables that have been wrapped in a protective plastic covering to ensure they do not come into contact with the concrete.

Above Right: Due to the high sensitivity of the instruments it is important to guide the cage in as it is being lowered.



Above Left: A top down view of the pile cage resting in the borehole with the top layer of gauges clearly visible.

Above Right: in order to fill the borehole a tremmie pipe must be inserted inside the reinforcement cage, in terms of potential instrument damage this procedure is the most dangerous.



Above Left: The pile as observed after the concreting is finished, the final part of the process is to remove the casing from the top ready for the construction of the top cap.

Above Right: After the casing is removed, the cable ends, still inside their protective cover, can be retrieved once the top cap is constructed it can be connected to a data logging solution.