

Client: Amec / KPO  
Site: Gas Injection Plant  
Location: Karachaganak Oil Field, Republic of Kazakhstan

## Project Description

GTL Partnership were employed to provide helical (screw) piles feasibility, design and supervisory services for the refurbishment of a gas injection plant in north west Kazakhstan



## Geotechnical Ground Conditions and Geohazard Identification

The site in north Kazakhstan had complex ground and environmental conditions which would affect the design of the helical (screw) piles. GTL Partnership reviewed the available soils information and commissioned its own assessment of the geohazards that would affect the helical (screw) pile design on this project. This assessment was carried out by Arup and its findings presented to the client by GTL. This took the form of geo-hazard identification and categorisation of risk. This produced a risk based design approach to avoid additional geotechnical investigation, reducing the impacts on project programme. This strategy involved the use of preliminary pile and contract pile testing to confirm pile performance under load.

## Helical Pile Design and Testing

The particular geohazards in this part of the world make the construction of any foundations difficult and challenging. GTL Partnership designed the helical screw piles taking into account the affects of collapsible (Metastable) soils, frost zones and challenging environmental conditions.



Despite the projects particular challenges, GTL Partnership designed and supervised the installation of over 300 piles that met both the load and settlement requirements from the client, including testing of 6% of the contract piles.



It was clear that helical (screw) piles were the best solution for the job helping the client to meet tight programme constraints.