



**INDUSTRY**  
Oil and Gas

**VALUE**  
€540k

**TIMEFRAME**  
9 months

**LOCATION**  
Saudi Arabia

## DESIGN AND BUILD OF A LARGE IN-SITU GROUNDWATER TREATMENT PLANT FOR A PILOT TRIAL ON AN OIL REFINERY IN SAUDI ARABIA

### CHALLENGE

GeoStream was tasked to deliver a large in-situ groundwater treatment plant for an oil refinery in Saudi Arabia, to target significant dissolved phase hydrocarbon contamination and LNAPL in groundwater across the site, using circa 100 recovery/sparge well points.

- Before installation could begin, the GeoStream design team had to overcome various challenges:
- Adapting the ATEX-rated Pump & Treat technology for a desert environment.
- Finding a way to supply the vast amount of air flow needed.
- Meeting specific electrical requirements of both the refinery and Saudi Arabia.

- Extracted air and condensation water are treated by activated carbon filtration; while the skimming unit extracts LNAPL using pneumatic active skimmers, and stores the product in a series of IBC tanks.
- Working with no neutral electricity supply, GeoStream fully designed and built a control system, with a PLC, CPU and touchscreen, which manages 340 kW of nominal power. It uses software entirely designed by GeoStream in line with the client's safety requirements.
- The main panel is linked via fibre optic to a local network of auxiliary panels for control of remote areas, including two ATEX-rated control boards.

### ACTIVITY

- GeoStream supplied two separate groundwater treatment areas with ATEX-rated equipment, including two custom-designed 20 m<sup>3</sup>/h, stainless steel oil and water separators, plus two 10 m<sup>3</sup> crude oil storage tanks.
- The equipment has been adapted for the desert environment, including air conditioning, thermal insulation, custom-designed air filters, chimneys and ventilation grilles to avoid sand and dust contamination.
- The on-site Pump & Treat system uses three 90 kW rotary screw compressors to supply air to almost 100 submersible pneumatic pumps.
- Three extraction systems were installed – one standalone, another combined with an air sparging unit, and a third combined with a skimming unit.



### SERVICES

- **Design & build services**
- **Process equipment**
- **Chemical & biological technologies**
- **Physical remediation**

### RESULTS

Full design and build of Pump & Treat system – hardware and software

Manufactured in GeoStream's factory in Magnano in Riviera, Italy

ATEX-rated to meet strict safety regulations

Air supplied to 100 submersible pneumatic pumps

Your single source provider for remediation technologies

