The tender focused on the design, construction and start-up of a water drainage system using Wellpoint-Eductor technology and a water treatment system through a physical-chemical section and final filtration through quartz sand and activated carbon columns.

The installation included interconnecting piping for the installation of a fibreglass collection line over 1000 metres long, and an insulated carbon steel discharge manifold installed on the factory rack about 400 metres long.

The hydraulic barrier built consists of 311 wellpoints that stretch out, 3 m apart, along the NE and SE perimeter of the plant. There are 16 drainage stations, each consisting of a fibreglass tank and a recirculation pump, with control instrumentation and local control panel for each station. The barrier system has a potential of over 120 m³/h and fully automatic operation.

Geostream has completed the start-up of a new and technologically advanced groundwater treatment plant in a petrochemical plant in Turin, Italy.

The safeguarding of the underground water resource in the hydrogeological areas of the site was guaranteed by the construction of a new hydraulic barrier (Wellpoint system) for the surface water, the simultaneous recovery of the supernatant and the monitoring of natural attenuation. The excess compared to the discharge limits in surface waters (Table 3 Annex 5 Part III D.Lgs. 152/06) mainly refers to: Fe, Mn and Total hydro-carbons.
The groundwater treatment plant (GTP) was designed according to the criterion defined within the single reclamation project, structuring it on 3 parallel treatment lines (40 m³/h for each line), independent from each other, so as to prevent the entire plant from being shut down when carrying out repairs and maintenance, thus guaranteeing outstanding reliability in terms of continuous system operation.

**THE MAIN COMPONENTS OF THE TREATMENT SYSTEM ARE:**

- an initial oil separator with a volume of 25m³ consisting of an underground tank in concrete with an inclined bottom and dedicated partition for the installation of submerged water recovery pumps
- a water storage system for equalisation of the water with a volume of 480m³/h consisting of a modular steel tank complete with cover and accessories necessary for interconnection
- three chemical/physical treatment lines utilising flash mixing and flocculation, made with concrete tanks equipped with internal partitions, with internal treatment suitable for process fluids, and equipped with ladders and inspection gangways and suitable agitators and chemical dosing systems
- three decanters with solid cement lamellar packs with Thomson overflow, equipped with ladders and inspection gangways and adequate sludge drainage progressive cavity pumps
- six sand and activated carbon filtration columns with a volume of 10m³/each with automatic valve ramp for washing, backwashing and flushing; including two 30m³ fiberglass tanks for automatic management of backwashing and related waste water.

The operation of the plant is completely automated and managed by a remote-control system integrated with that already in use for managing the entire plant. The process parameters are remotely managed in the control room, through a DCS, in order to allow both operator control and intervention. For this, a 3000-m loop of optical fibre has been created inside the cable trays present on site.

It took just 5 months to build and start up the system, so as to comply with the request for activation of the plant remediation works for the removal of hydrocarbons and solvents.