



# CONTAMINATED SOIL TREATMENT PLANT IN CATANIA

The combined facility for the contaminated soil treatment combines the advantages of using the process of thermal desorption for the removal of organic contaminants (i.e. hydrocarbons) to those resulting from the use of the inertization process for the stabilization of the inorganic contaminants (i.e. heavy metals).

The thermal desorption system (with a potentiality of 100.000 t/year) is able to treat contaminated soils with operating temperatures below 650°C; it has the following advantages, compared to other traditional systems of incineration of the contaminants: the treatment doesn't have emissions of dioxins and furans; the decontaminated soil still retains the original mechanical properties and it can therefore be used for industrial purposes; the treatment costs are certainly lower.

The inertization system (with a potentiality of 50.000 t/y) is based on the stabilization process - that is used for decades - for the stabilization of hazardous contaminants within a solid compact matrix which is also stable over time. Using the appropriate reagents, cement and water the process also blocks the contaminants that are more dangerous and difficult to treat, such as chromoVI, ammonia, arsenic and mercury.

The facility offers clear advantages in terms of both treatment times (less than those of other traditional systems) and economic, managing to convert hazardous waste into non-hazardous. The soil remediation, which is often too expensive and environmentally costly, is so encouraged.

## DESIGN DATA

### Private client

E.T.A. SERVICE s.r.l.

### Tasks assigned and carried out

Preliminary and final design, Environmental Impact Assessment and Integrated Environmental Authorization application

**Estimated cost** € 10.170.858,24

**Location** Catania

**UTM Coord. (Zone 33S)** 503,250

E - 4,136,770 N

**Site area** 40.000 m<sup>2</sup>

**Covered surfaces for treatment and storage** 11.700 m<sup>2</sup>

**Design period** 2013

## TECHNICAL DATA

**Operations according to Encl. B and C referring to Part IV of Law Decree No. 152/06 (D.Lgs. 152/06) and further amendments D9, D14, D15, R5, R13.**

**Rain water storage:** 160 m<sup>3</sup>

**Leachate storage:** 200 m<sup>3</sup>

### THERMAL DESORPTION SECTION

**Maximum potentiality:** 40 t/h

#### Type of input waste:

contaminated soils with organic substances (i.e. hydrocarbons)

**Average specific electric energy required:** 26 kWh/t

**Average specific thermal energy required:** 540 kWh/t

**Air flow:** 80.000 m<sup>3</sup>/h

### INERTIZATION SECTION

**Maximum potentiality:** 14 t/h

#### Type of input waste:

contaminated soils with inorganic substances (i.e. heavy metals)

**Average specific electric energy required:** 32 kWh/t

**Air flow:** 63.000 m<sup>3</sup>/h

Emission treatment system  
Cyclone – Thermal Oxidizer  
– Dry scrubber – Baghouses – VOC abatement towers

