



# Application Note

## Redevelopment of contaminated sites

**OVERVIEW:** The process for the contaminated sites redevelopment has been deeply modified by D.Lgs. 152/06 e ss.mm. ii. “Environmental standards”. in Part Four, Title V “redevelopment of contaminated sites” it regulates remediation interventions and establishes the procedures, criteria and processes for carrying out the necessary operations to eliminate pollution sources or to reduce pollutants concentrations. In the D. Lgs, 152/2006 sites are defined as:

- **Potentially contaminated** when one or more values of pollutant concentration detected in environmental matrices are higher than CSC values, while the operations of characterization and environmental and health risk analyses are carried out in order to determine if a site is contaminated or not according to CSR;
- **Contaminated** when the values exceed the CSR ones, according to the risk analysis procedure set out in Annex 1 of Part Four of D.Lgs. 152/06 based on characterization plan results.
- **Not contaminated** when detected contamination in environmental matrices is lower than CSC values or, if higher, it is still lower than CSR values.

**INTRODUCTION: Risk analysis** is the instrument to use to identify redevelopment goals.

Volatile substances migration from the topsoil to contaminated deep soil and/or aquifer may alter indoor and/or outdoor air quality, for any designated use (residential/leisure or industrial/commercial). To determine if an area is contaminated, it's necessary to compare measured concentrations in selected environmental components with the relative **CSC**. If CSR is not exceeded, it is not necessary any intervention. Otherwise, the site is partially contaminated and it is necessary to determine the CSR. In this case there are two possibilities: to intervene on contaminated environmental components or to verify critical issue encountered during soil gas measurement. At the end of this activity it is necessary to reprocess the risk analysis by using soil gas measurement, to recalculate the risk or the CSR in an unsaturated soil/ soil gas layer and verify its excess (or the one of the acceptable risk). If CSR does not exceed, according to health protection, it is not necessary to intervene, otherwise it is possible to verify critical issues in soil gas or to intervene on contaminated environmental matrices.

**RESULTS:** Gas chromatography is the **analytical technology** suggested to detect concentrations in selected environmental components (air, soil, water and soil gas), combined with mass spectrometry. The use of this sophisticated technique makes it possible to detect in a few minutes a **qualitatively and quantitatively unknown mixture of Volatile Organic Compounds (VOC)**.

**CONCLUSIONI:** : The use of portable instruments make it possible to provide answers in a short period of time, making it easier to identify risk area demarcation and reporting in real-time the presence of a concentration above-set threshold limits



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AI-EN0400-0