

# Human Health Risk Assessment

Using the hydrogeological information and geochemical and hydrochemical panorama of the area under study, a human health risk assessment can be elaborated based on the methodology suggested by USEPA (Risk Assessment for Superfund - Human Health Evaluation Manual - 1989) and recommended by CETESB in Board Decision No. 38 of 2017.

The objective of the human health risk assessment study is to determine the degree of exposure of people to the compounds present in the studied area, relating such exposures to the admissible values, in accordance with that recommended by the São Paulo State Environmental Agency (CETESB).

The main objectives of the Risk Assessment studies are:

- To determine and quantify the degree of risk to human health from the compounds of interest present on site.
- Set remediation targets for the chemical compounds of interest, if necessary.

Human health risk assessment work is carried out according to the steps described:

1. Data Evaluation: this item encompasses the evaluation of all data generated by the diagnosis, including the identification and evaluation of the parameters that will be the focus of the Risk Assessment (RA). Plume maps for all chemical compounds of interest in the unsaturated and saturated zone will be evaluated. Spreadsheets with site-specific risk assessment parameters.
2. Toxicological Assessment and Chemical Profiles: Toxicological Assessment involves the analysis of the types of adverse human health effects associated with chemical exposures, as well as the relationships between the magnitude of exposure and adverse health effects, and inherent uncertainties.
3. Exposure Analysis: Exposure Analysis involves an assessment of all exposure pathways and the characteristics of specific environments to determine current and future scenarios. All environments will be examined and partition models selected according to CETESB and USEPA protocols.

At the end of the assessment and risk stage, the MCA 4 conceptual model should be developed, which should support the decision as to whether or not a remediation process is necessary.