



TERQ (Transparent Toxicological Exposure Risk Quantification)

Site-specific Health Risk Assessments and Definition of Remediation Goals, taking into account the multiple site specific Pollutant Exposure as Management Tool for Environmental & Health Compliance and Investment Safety (M&A and Real Estate Development).

Objectives:

- Realistic Health Risk Assessment taking into account site specific multiple Pollutant Exposure.
- Transparency concerning toxicological Health Risks for Site Owners, Investors, Operators, Site Users and Authorities by ensuring Transparent Risk Quantification versus "Black-Box"-Modelling.
- Determination of compatible Site Use for acceptable Health Risks in relation to Sub-soil & Building Contaminations.
- Definition of Remediation Goals (as residual acceptable Concentrations) for acceptable Health Risks (Regarding also Natural Attenuation, etc.).
- Guarantee of maximum Legal Safety and Clean-up Cost Optimisation for Site Owners, Investors and Operators.
- Optimum Management of Clean-up Costs and Increase of Real Estate Value.
- Ensuring Investment Safety.

Possible exposure paths at a site:

- A. Inhalation:**
- Inhalation of Pollutant Vapours & Gases.
 - Inhalation of dust from contaminated Soil.
 - Inhalation of Contaminated Tap-Water vapours (during shower or bath).
- B. Oral Exposure:**
- Direct Oral Exposure of Soil
 - Oral Exposure of own-produced Foodstuffs (fruits, vegetables, etc.)
 - Oral Exposure of Contaminated Tap-Water (for ex. In case of Drinking water Pipes in contaminated Soil)
- C. Skin Contact:**
- Skin Contact with soil and dust
 - Skin Contact with Contaminated Tap-Water during shower or bath.
 - Skin Contact during a bath in Surface Water (lake, river, etc.)

The stages in the Transparent Toxicological Exposure Risk Quantification are as follows:

- Phase 1**
Definition of Pollutant Toxicity Implementation
- Phase 2**
Definition of Exposure Scenarios:
- Site Use Characteristics
- Exposure parameters
- Phase 3**
Exposure Quantification
- Phase 4**
Exposure Risk Quantification
- Definition of Toxicities
- Health Risk Quantification
- Phase 5**
Interpretation of the results (Acceptable Risks or not)
- Phase 6**
Definition of Remediation Goals for Acceptable Health Risks and Monitoring



Example of how an area is used and the Corresponding Exposure Pathways in Downstream of a Contaminated Site

Example of possible Exposures for a Contaminated Site hydro-geological Down Gradient with Sensitive Site Uses (Residential area with vegetable garden, etc.)

