



## Site Characterizations

The evaluation of site characteristics focuses on the current extent of contamination, estimating the rate of contamination growth, predicting contaminant concentrations and potential exposure points. Data is analyzed to identify the site's physical characteristics, source characteristics, nature and extent of the contamination, opportunities for the contamination to spread and expected outcome of the contamination. The physical characteristics of the site and surrounding areas are identified to define potential transport pathways, receptor populations and to provide sufficient engineering data for the development and screening of remedial action alternatives. In

formation can be categorized as surface features (including natural and artificial features), geology, soils, surface water hydrology, hydrogeology, meteorology, human populations, land uses and ecology.

Finally, we will determine the nature and extent of contamination. We will characterize the nature and extent of contamination, so informed decisions can be made regarding the level of risk presented by the site and the appropriate type(s) of remedial response. Determination of the contamination outcome and transport mechanisms are identified by studying the transporting media dynamics. Laboratory analyses data is used as the basis for decision making which requires that the analysis of samples in laboratories meets specific QA/QC requirements.

Many things must be considered when determining the sources of contamination. Since petroleum products are the source of contamination at oil and gas facilities contaminated soils should be considered sources of contamination. Soil should especially be considered a source of contamination if the original source (such as a leaking tank) is no longer present on the site or releasing contaminants. Source characterization involves the collection of data describing facility characteristics that help to identify the source location, potential releases and engineering characteristics. Said facility characteristics are important in the evaluation of remedial actions and waste characteristics such as the type and quantity of contaminants that may have been or will be exposed to the environment, and the physical or chemical characteristic of the source.



## Risk Assessment

Baseline risk assessment for the site must be accomplished to provide an evaluation of the potential threat to human health and the environment in the absence of any remedial action.

In general, the objectives of a Baseline Risk Assessment may be attained by identifying and characterizing several common determinants. The determinants commonly considered in a Baseline Risk Assessment include the toxicity and levels of hazardous materials present in relevant media, the environmental fate, potential transport mechanisms within specific environmental media such as physical chemical and biological degradation processes. Also, hydrogeological conditions, potential human and environmental re

ceptors, exposure routes and extent of expected exposure, level of impact or threat and the likelihood of such impact or threat occurring, level of uncertainty, and aerial contamination are also considered in a Baseline Risk Assessment. Finally, the quality and quantity of available data, number and complexity of exposure pathways, required precision of sample analyses and size of potentially exposed populations are considered. Components of the Baseline Risk Assessment are contaminant identification, exposure assessment, toxicity assessment, and risk characterization

## Remediation Strategy Planning

Alternative strategies for remediation are developed by assembling combinations of technology and identifying the media to which they would be applied into alternatives that address contamination on a site. This process consists of nine general steps that must be covered by the study such as identifying Remedial Action Objectives, General Response Actions, volumes or areas of media, identify and Screen Remedial Technologies and Process options, evaluate process options, conduct effectiveness evaluation, examine ease of implementation, conduct cost evaluation and assemble alternatives. Finally, the process options chosen to represent the various technology types for each medium or operable unit are combined to form alternatives for the site, appropriate treatment and containment options will be developed.