

### 6.3 Evaluation of Risk Assessments

This section consists of several subsections that outline direct and indirect exposures to both human and ecological receptors that permit writers must consider when reviewing permit applications, for combustion units, as well as a methodology that should be followed to ensure consistent evaluation of such units. Each subsection describes risk assessment components necessary to support the permit application for a combustion unit and provides specific tools and information required to support both screening and detailed human health risk assessments. The final subsection describes the uncertainty assessment that should be conducted for the permitting process.

*EPA's Risk Assessment Guidance for Superfund* (EPA 1989), identifies the following components of a human health risk assessment:

- Data evaluation and identification of chemicals of concern
- Exposure assessment
- Toxicity assessment
- Risk characterization
- Uncertainty assessment

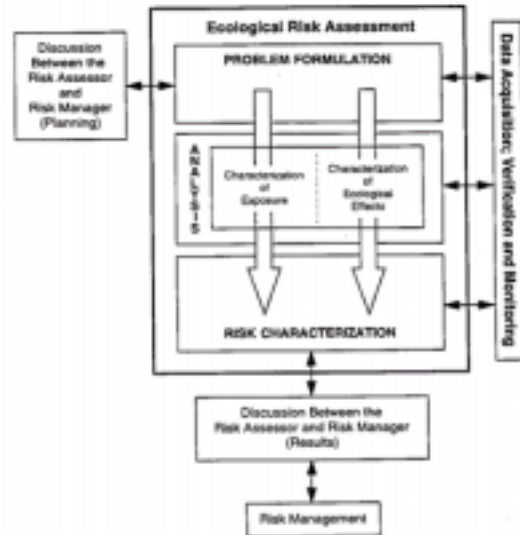
Together, the components present a complete evaluation of the human health risks associated with combustion activities or those risks associated with other Subpart X units. However, while all components of a risk assessment must be addressed consistently, the outcome and extent of investigation at any combustion unit will be site-specific. Each part of the risk evaluation is a combination of information about the site, default assumptions, and modeled or measured data. Because those elements are interdependent, all components must be included and described thoroughly. Therefore, a coherent description of risks from combustion activities can be given only when all site-specific information,

assumptions, and uncertainty about the information and assumptions have been communicated.

The following components of an ecological risk assessment are described in *EPA's Ecological Risk Assessment Guidance for Superfund* (EPA 1994) and in *Ecological Assessment of Hazardous Waste Sites* (Maughan 1993), and illustrated in the figure at right:

- Preliminary site investigation
- Problem formulation
- Exposure assessment (characterization of exposure)
- Toxicity assessment (characterization of ecological effects)
- Risk characterization

Components of Ecological Risk Assessment



The components will differ in complexity according to conditions at the site and the nature and extent of contamination present. Often the components are repeated in a detailed risk assessment, at increasing levels of complexity, until the following objectives, described in the ecological risk assessment guidance (EPA 1994), are obtained:

- Identifying and characterizing the current and potential threats to the environment posed by releases of hazardous substances
- Establishing cleanup levels that will protect those natural resources at risk

All the components should be included in the risk assessment and discussed thoroughly so that a complete description of ecological risks from combustion activities is communicated. The following subsections describe the general information required for each component of ecological and human health assessments and provide specific recommendations for screening level and detailed risk assessments.