

5.3 Modeling Air and Groundwater

When conducting a detailed media assessment, a permit applicant may use either monitoring or modeling, or a combination of the two, to determine concentrations of contaminants that are the result of releases from a Subpart X unit. There are no inflexible criteria for determining when to use monitoring and when to use modeling. Each technique has strengths and weaknesses that the permit writer should evaluate for each Subpart X unit before deciding which to require.

The major advantage of monitoring is that the results are real measurements rather than estimates. However, monitoring can be conducted at only a limited number of points; further, it may be difficult to ensure the selection of monitoring locations at which maximum concentrations occur. In addition, monitoring may not be technically feasible in some areas.

In such cases as those discussed above, modeling may be preferable. Modeling techniques allow the preparation of calculations at almost any location under many environmental conditions. But, because modeling involves the use of assumptions, results may be subject to interpretation. Often, a combination of modeling and monitoring will best characterize releases from Subpart X units. The permit writer should consider the following factors when determining which approach to require of a permit applicant:

- If monitoring is technically impracticable, modeling is preferable to no action. For example, because of the unconfined nature of air releases from such units, permit applicants historically have had difficulty in capturing the entire plume from OB/OD units through the exclusive use of air monitoring.
- Permit applicants that propose the exclusive use of monitoring should be required to conduct modeling to verify that the full extent of releases from a unit are captured at the monitoring locations selected.
- Permit applicants that propose the exclusive use of modeling should, where feasible, be required to conduct monitoring to provide a comparison to the results of air modeling.

Presented below are specific details about monitoring and modeling techniques for each environmental medium.