

4.4.3 Hydrologic and Geologic Characteristics of the Unit and the Surrounding Area

Like other land-based units, characterization of site-specific hydrology and geology at the facility is necessary to adequately define aquifer system(s), bedrock formation material(s), and subsurface soil. Information required for defining the hydrogeologic environment of the area in the vicinity of the Subpart X unit includes the quality, quantity, and gradient of the existing ground water; the locations of current and future ground water users; the current and potential rates of withdrawal of water; and local land-use patterns. Adequate baseline hydrogeologic data is needed for interpretation of monitoring data and to be used as input parameters for site-specific hydrogeologic models.

The permit applicant must characterize the hydrogeologic environment by defining (1) the hydrogeologic setting of the area in the vicinity of the unit; (2) the potential receptors for releases from the

unit into the ground water and subsurface environment; and (3) the expected migration and dispersion rates of potential releases from the unit into the subsurface environment, including groundwater.

The potential for physical and chemical interactions between the hydrogeologic materials and hazardous constituents that may be present in releases from the Subpart X unit also must be described. Biological and geochemical interactions may result in biodegradation or transformation products different from the original constituents released from the unit. The application should describe any potential for such interactions and the effects the geochemical and biological interactions may have on the subsurface environment.