

Contaminant Hydrogeology

Aquilologic has particularly strong capabilities in contaminant hydrogeology. We have worked on some of the largest and most complex groundwater contamination issues in the nation. We have also developed a pre-eminent position in the characterization and remediation of emerging and recalcitrant chemicals.

Chemical releases often impact groundwater. In some instances, a pure chemical can be found in the subsurface. These non-aqueous phase liquids (NAPLs) may have a specific gravity lighter (LNAPLs) or denser (DNAPL) than water. Petroleum hydrocarbons are the most common LNAPLs; whereas, chlorinated hydrocarbons are the most common DNAPLs. The movement of these NAPLs in a multi-phase setting (e.g. vapor, NAPL, solute) is highly complex and a function of the environmental setting and chemical properties of the compound.

Once dissolved in groundwater, chemicals will migrate with the groundwater flow. However, in general, certain “natural attenuation” processes will retard the rate of contaminant movement relative to the advective velocity of the groundwater. Thus, to characterize groundwater contamination, the hydrogeologic setting, hydro-geochemistry, contaminant presence and attenuation processes must be assessed. This allows for a more complete evaluation of risk to receptors, human health and the environment, and the design of a more effective remediation program.

The investigation of groundwater contamination is particularly complex, given that the subsurface setting cannot be easily seen or characterized, and the techniques to collect field data are intrusive and relatively expensive.

Many of **aquilologic’s** projects include not only complex hydrogeologic settings, but also multiple and comingled releases, multiple source sites, and numerous potentially responsible parties (PRPs), further complicating the investigation process.