LNAPL Dissolution Calculator Example

Example Description

Site Description

Gasoline was released to a shallow aquifer.

The shallow aquifer has a hydraulic conductivity of **1000 m/d** and a hydraulic gradient magnitude of **0.005**.

The LNAPL lens that forms has an average thickness of **0.5 m** and a diameter of **10 m**.

We want to calculate concentration changes about every **5 minutes (0.0035 days)** for the **1,000 L** release over about **1 month (0.08 years)**.

A well immediately downgradient of the release will be used to monitor concentrations of **benzene and toluene** in the groundwater flowing through the lens to see how the concentrations of benzene and toluene in the downgradient well will change over time.

The molecular weights, solubilities, volume fractions in the gasoline, and the pure compound densities for benzene, toluene, and. the lumped other LNAPL constituents in the gasoline data are as follows:

Constituent	MW g/mol	Solubility (mg/L)	Vol Fract yi	Density (g/cm3)
Benzene	78.1	1770	0.890	0.8700
Toluene	92.1	530	0.100	0.7400
Other LNAPL components	100	10	0.010	0.7800

Output and Interpretation

The concentrations of each of the LNAPL constituents over time in the downgradient well are as shown in the graph.

Inputs and Outputs in Toolbox