

FEMWATER-LEWASTE

Model Uses FEMWATER can be used to apply assimilative capacity criterion to development of wellhead protection areas and model the movement of moisture and solute transport through variably saturated porous media as required under the 1986 Safe Drinking Water Act Amendments.

Major Categories Hydrology and Water Use

Subject Knowledge Level
Advanced

Minor Categories Surface Water

Technical Difficulty Level
Advanced

Model Type Physical Model

Geographic in Nature?
No

Abstract

FEMWATER stands for “Three-Dimensional Finite Element Model of Water Flow Through Saturated-Unsaturated Media” and LEWASTE for “Three-Dimensional Lagrangian-Eulerian Finite Element Model of Waste Transport Through Saturated-Unsaturated Media.” Both models are related and can be used together to model flow and transport in three dimensional, variably-saturated porous media under transient conditions. The models are capable of functioning under multiple distributed point sources and sinks. These models can be used to apply the assimilative capacity criterion to development of wellhead protection areas, as each U.S. state is required to do under the 1986 Amendments to the Safe Drinking Water Act.

The complexity of 3DFEMWATER/3DLEWASTE numerical models requires that they be used by experienced numerical modelers with strong background in hydrogeology.

Future Developments

Unknown

Model Limitations

Requires high level of knowledge of hydrogeology and numerical modeling concepts.

Model Features

- Use of Lagrangian and Eulerian modeling techniques
- Capability of assessing assimilative capacity to well-head protection areas (as required by the Safe Water Drinking Act Amendment of 1986).
- Capability of modeling for saturated or unsaturated media types

Required Data Types

Unknown

Model Outputs

Unknown

Hardware Requirements

None noted.

Supported Platforms

DOS	<input checked="" type="checkbox"/>	UNIX	<input type="checkbox"/>
Windows	<input type="checkbox"/>	Macintosh	<input type="checkbox"/>

Software Requirements

None noted.

Cost, Licensing and Availability

DAFLOW is provided free of charge from the link below.

Source

US Environmental Protection Agency

Source URL

<http://www.epa.gov/ceampubl/gwater/femwater/>