

# *F a c t s*

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## HOW DOES GROUNDWATER MOVE

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Groundwater moves (or flows) from areas of higher energy potential (higher elevation and/or pressure) to areas of lower energy potential (lower elevation and/or pressure). Within an aquifer, groundwater naturally flows in one predominant direction, i.e., mainly horizontal or vertical, up or down. Locally, this natural flow direction can be affected or changed by pumping a well.

How fast groundwater moves depends on permeability and on the slope or gradient of the groundwater surface. Groundwater moves quickly through very permeable bedrock or overburden, and slowly through clay or silt. There is a great range in groundwater velocities.

Quick water movement is about 30 centimetres (1 foot) per day, except in Limestone-like topography. In some clay formations, it moves as slowly as a few centimetres a year. Groundwater drawn from a deep well may have been in the ground for hundreds of thousands of years. In a shallow aquifer, the age of the water may be only a few weeks or years.

### **Groundwater Movement**

#### **Low Gradient**

In a shallow, sandy aquifer, where there is very little change in elevation, water moves slowly in a lateral direction from high pressure to low pressure ones.

#### **High Gradient**

Water in hilly, sandy aquifers will move quickly from high elevation areas to areas of low elevation (or pressure). Note: the shape of the water table generally follows surface features.