

## **Behaviors of chlorinated solvents permeated into the ancient fluvial deposits ; an application of architectural concepts to the hydrogeology of polluted aquifer system**

**MANAKA, M. Miyama Co., Ltd., Nagano, Japan.**

Chlorinated solvents permeated into the ancient fluvial deposits at a factory site caused groundwater pollution. As the fluvial system is heterogeneous complex of permeable and impermeable sediments, the hydrogeologic framework is led from reconstructed depositional architecture.

Aquifer units are in agreement with depositional stages of channel systems. Aquifer deposits, consist of sandy channel-fills and mud-dominated interchannel deposits, show the horizontal heterogeneities of permeability in aquifers. Confining beds consist of paleosols and vegetated swamp deposits.

The morphology of bankfull surfaces of channel systems is the leading factor to decide the local flows of groundwater. In some aquifers, the potentiometric surfaces of groundwater response to the reliefs of reconstructed bankfull surfaces.

The factors controlling the diffusion of pollutants are not only the groundwater flow but also the horizontal heterogeneities of permeability in aquifers. In addition, the chlorinated solvents, which are high in density and low in viscosity, are relatively infiltrative into paleosols and vegetated swamp deposits. In places, they are extremely recharged into confining beds and hence increase the contents of pollutants in lower aquifers.

Behaviors of groundwater and the pollutants are analysed on the depositional architecture. This suggests that architectural concepts may also be applicable for effective remediations.