

HYDROGEOLOGICAL PECULIARITIES OF CONTACT ZONES BETWEEN HYDROGEOLOGICAL MASSES AND AQUIFER BASINS IN THE AMUR REGION

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The contact zones between hydrogeological masses and aquifer and volcanic basins are characterized by a complex structure and inhomogeneous hydrogeological conditions. Within the “mass-basin” system a combination of tectonic, paleogeographic and hydrodynamic factors effect the process of underground water formation. The area under study forms a zone of complex water exchange. Within this zone transit lateral movement of fault-ground waters from the mass towards the lowermost parts of aquifer basins, vertical leakage of pressure water, infiltration of ground and surface waters through lithological windows and also squeezing out of aquifer water from the central parts of the basins along permeable channels are combined. Tectonic discontinuities showing various degree of tectonic activity, openness and permeability play an important part in all these complicated but interrelated processes. The suture deep faults striking conformably to extension of hydrogeological masses, sharply contrasting and sometimes step-like conjugation between those masses and small aquifer basins as well as a complex net of transverse faults and local uplifts add to the complexity of structure of the contact zone. Spatial distribution of fields of filtration and hydrodynamic heterogeneity resulted in irregular watering of rocks, in variations in chemical composition of underground water within hydrogeological masses and volcanic basins as well as in local hydrochemical inversion. The studies of hydrogeological peculiarities of the “mass-basin” system will make it possible to solve a problem of water supply to a number of inhabited areas where there is a deficit of underground water, to define factors causing variations in quality of potable water and to set up a net of observation wells to monitor levels, discharge, quality and chemical composition of underground water.