

DYNAMICS OF ECOLOGICAL AND GEOCHEMICAL CHANGES IN NATURAL WATERS AND SOIL AT DIFFERENT STAGES OF DEVELOPMENT OF SHANUCH COPPER-NICKEL DEPOSITS (KAMCHATKA)

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Increased contents of ore elements in natural waters within the territory of copper-nickel deposit development is revealed at the end of the quarry exploitation and after the transition to underground mining technology. An exception is the copper which content falls due to the decrease in concentration of this element with depth. Sharp increase in the contents of ore elements in the adjacent to the mine site mining and peat soils at the stage of open mine development is caused by man-made and seismic impacts on the marsh produced by massive explosions in the quarry. Seismic shock causes desorption of mobile forms of ore elements from deep horizons of silt soil in swamp water and as well as the enrichment of the surface peat by these elements. In the subsequent transition to underground mining, concentrations of Ni, Cu and Zn in peat are falling below baseline while the value of the total pollution index Z_c is reduced from 162 to 47. The authors revealed a stable invert correlation of ore element contents in the marsh waters and peat soils.

Keywords: copper-nickel mine, water, soil, man-made and seismic impact.