

MATHEMATICAL MODELLING OF NONLOCAL
FLUID FILTRATION IN SUBSURFACE
LINEARLY-HEREDITARY MEDIA AND DEFINING
THE HYDRODYNAMIC PARAMETERS OF
STRATUM AROUND RUNNING WELL

Abstract

In the paper the dynamics of development of pore pressure and mode of deformation of strata is studied with regard to singularities of their deformation, their influence on hydrodynamic filtration regime. The analysis of behavior of the obtained solutions when the stratum and ambient rocks show hereditary deformed properties by regular and singular kernels of integral operator is given. The reasons of effects of "vault" and "anomalous" redistribution of strata pressure and well production in time in subsurface strata are discovered.