THE BISHOFITE - WELL CEMENT SISTEM S BEHAVIOUR FOR TASK WELL S BORING THROUGH ROCK SALT SEAM COMPLEXED BY THE BISHOFIT S LAYERS

(Poster s abstract)

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The modelling and research of the "well-layer" system·s process was developed, also bishofite and halite interaction with the well tighting cements. The pressure increase bishofite-water system process in a closed volume, also magnesical cement behaviour at process of mixing with solutions and holding in a closed volume at surplus pressure were researched . In a closed volume the solving of bishofite in water or NaCl brine is accompanied by the significant pressure increase (up to 30 Mpa) relatively to starting one. So at the well boring through the rock salt seam intersected by the bishofite layers the drilling solution must be saturated with magnesium cloride.

It is well-known, that portland-cement is destroyed at contact with $MgCl_2$ solution. So to fix bishofite layers intervals was recomended the magnesical cement ($mMgO \times nMgCL_2 \times yH_2O$) usage.

Tests fulfilled on the specially developed unit showed that in case of mixing MgO with solution $MgCl_2$ with density 1280-1310 kg/m^3 pressure decreased from 25,0 Mpa to 3,0-5,0 MPa because of cement mass consolidation during hardening, also because of molecular restructurisation. Hence it may expect that no pressure increasing in bishofite layers can be if magnesical cement is employed. There is the tight contact of cement stone with bishofite and rock salt in such a case.

At magnesical cement interaction with saturated $MgCL_2$ solution the latest thickens around cement stone. It was established this effect connected with a release reaction products (magnesium and calcium hydroxides) from cement stone. This fact takes off the question about aciditic corrosion.

On the base of carried out research the borehole behaviour cheme in bishofite layers was determinated at magnesical cement emploiment. It was developed the rational well construction and well boring and strenghening technology was determined for providing long-time safe exploitation the "well - cavern" system.