

CLASSIFICATION OF TYPES OF GEOLOGICAL ENVIRONMENT BY PERSPECTIVITY HIGH LEVEL WASTE IN DEEP DRILL HOLES

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Classification of types of geological environment by perspectivity high level waste in deep drill holes KOZYREV, V. N. Scientific-Industrial Center for Superdeep Drilling and Comprehensive Studies of the Earth's Interior Nedra, Yaroslavl, Russia. A method of disposal of high level waste (HLW) in a deep geological environment (DGE) by using 2-6 km deep drill holes essentially improves safety of its isolation from the biosphere. Specialists from FGUP NPC Nedra generalized the data obtained from domestic deep and superdeep wells: Kola (12261m), Ural (5401m), Tumen (7502 m) and others. New data allowed to classify DGE types by their suitability for HLW disposal in the deep drill hole repositories (DDHR). DGE types of continental geostructures are divided into 3 categories: high perspectivity (Ê1), limited perspectivity (Ê2) and non-perspectivity (Ê3). Category Ê1 includes DGE types, represented by structural-formational complexes (SFC) of crystalline basement of ancient platforms. By the mode of SFC occurrence we distinguish DGE shields and basement projections overlaid by a platform mantle with thickness up to 2.5 km. Category Ê2 combines SFC groups which include fold belts and lithified sedimentary rocks of deep zones of ancient and young platforms. A more detailed classification within categories Ê1 and Ê2 is made by the structure, composition, properties and parameters of DGE types under study in real conditions of geostructures under investigation. Category Ê3 includes DGE types of the regions with Mesocenozoic tectonic and magmatic activity. Detailed classification of DGE types can be used to divide geostructures of different size into areas and to select local geostructures for HLW isolation in DDHR.