

Seismicity and seismo-tectonic environment at regions of nuclear energetics critical facilities location in Kazakhstan

The regions of 3 research reactors location in Kazakhstan (VVR-K, IGR, IVG-1) were investigated as well as the suggested site for construction of low-enriched uranium bank to develop methodical issues for successful estimation of seismic conditions of places for designed, constructed and exploited facilities of atomic field and atomic industry. To characterize seismic activity of the earth crust at the considered facilities location, the currently effective Map of general seismic zoning (GSZ) of Kazakhstan territory was used. For the investigated facilities, the geological and tectonic, geophysical and seismological data (from ancient time to 2015) were collected and analyzed, earthquake catalogues containing 35 thousand earthquakes and 7.4 thousands earthquake focal mechanisms were compiled. The characteristics of background seismicity and seismic and tectonic conditions for the whole observation period and current period by monitoring data are provided. Periodic variations of seismic and tectonic parameters and its relation to seismic mode of the Northern Tien Shan region where VVR-K reactor is located were determined. Specific features of the strain-stress state parameters before a large earthquake realization were revealed.

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