



Geological Investigation Program for the Site of a New Nuclear Power Plant in Hungary

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Comprehensive site evaluation program is implemented for the new Nuclear Power Plant to be constructed at Paks site in Hungary with the aim of confirmation of acceptability of the site and definition of site-related design basis data. Most extensive part of this program is to investigate geological-tectonical features of the site with particular aim on the assessment of the capability of faults at and around the site, characterization of site seismic hazard, and definition of the design basis earthquake.

A brief description of the scope and methodology of the geological, seismological, geophysical, geotechnical and hydrogeological investigations will be given on the poster. Main focus of the presentation is to show the graded structure and extent of the geological investigations that follow the needs and scale of the geological modeling, starting with the site and its vicinity, as well as on the near regional and the regional scale. Geological investigations includes several boreholes up-to the base-rock, plenty of boreholes discovering the Pannonian and large number of shallow boreholes for investigation of more recent development.

The planning of the geological investigations is based on the 3D seismic survey performed around the site, that is complemented by shallow-seismic survey at and in the vicinity of the site. The 3D geophysical imaging provides essential geodynamic information to assess the capability of near site faults and for the seismic hazard analysis, as well as for the hydrogeological modeling. The planned seismic survey gives a unique dataset for understanding the spatial relationship between individual fault segments. Planning of the research (trenching, etc.) for paleoseismic manifestations is also based on the 3D seismic survey.

The seismic survey and other geophysical data (including data of space geodesy) allow the amendment of the understanding and the model of the tectonic evolution of the area and geological events. As it is known from earlier studies, seismic sources in the near regional area are the dominating contributors to the site seismic hazard. Therefore a 3D geological model will be developed for the 50 km region around the site in order to consider different geological scenarios.

Site-scale investigations are aimed on the characterization of local geotechnical and hydrogeological conditions. The geotechnical investigations provide data for the evaluation of site response, i.e. the free-field ground motion response spectra, assessment of the liquefaction hazard and foundation design. Important element of the hydrogeological survey is numerical groundwater modeling. The aim of hydrogeological modeling is the summary of hydrogeological data in a numeric system, the description, simulation of underground water flow and transport conditions.