

Cooperation with Russian University of Peoples' Friendship (RUDN), Moscow, Russia

Prof. Alexander Vorobiev

RUDN project: Elaboration of technology for development of ecologically safe oil shale mining.

The research will engage scientists of Tallinn University of Technology, Department of Mining for assessing the quality and availability of ground water because its vulnerability to contamination requires adequate characterization of the geologic, geophysical, geotechnical and geochemical factors controlling subsurface fluid flow and contaminant dispersal. Although it is relatively easy to determine the average hydrologic properties of a rock mass or sediment, one of the greatest challenges to effective waste isolation lies in accurate characterization of hydrologic heterogeneity and preferential flow paths (for example, the one fracture, fault, or prediction of stream-channel deposit that may carry most of the contaminants). Also, prediction of the long-term hydrologic behavior of aquifers and aquitards and the attenuation or degradation of toxic wastes requires an improved understanding of the physical, chemical, and biological processes controlling the evolution of hydrologic properties and fluid chemistry with time.

Determination of the best technology applicable for any oil shale project depends on the location, the setting, and the composition of the target oil shale deposit(s) and requires individual design considerations to maximize its economics.

Working-plan for the period of January 2010 to December 2011

The activities to be carried out and the deadlines are as follows:

2010, February – August. Field studies and sampling of oil shale in “Estonia” mine, “Narva” open cast in Estonia and in Kashpir deposit in Russia.

September – international conference RLEPT9. Executive Dr. Sergei Sabanov.

October – December. Measurements in the laboratory at Department of Petroleum Geology, mining and oil and gas business for experimental and environmental study of *in-situ* oil-shale retorting. Executive Dr. Alexander Vorobiev.

2011, January – June. Assessing the quality and availability of ground water because its vulnerability to contamination requires adequate characterization of the geologic, geophysical, geotechnical and geochemical factors controlling subsurface fluid flow and contaminant dispersal.. Executive Dr. Alexander Vorobiev.

July – October. Determination of the best technology applicable for any oil shale project depends on the location, the setting, and the composition of the target oil shale deposit(s) and requires individual design considerations to maximize its economics.

September – international conference RLEPT10. Executive Dr. Sergei Sabanov.

November – December. Compilation of database and interpretation of results. Executives Dr. Sergei Sabanov and Dr. Alexander Vorobiev.