

Jury Member Report – Doctor of Philosophy thesis.


Name of Candidate: Aysylu Askarova

PhD Program: Petroleum Engineering

Title of Thesis: Physical and numerical modeling of thermal methods of EOR and improvements of oil recovery

Supervisor: Associate Professor Alexey Cheremisin

Name of the Reviewer: Yuri Popov

I confirm the absence of any conflict of interest	Signature:  Date: 12-11-2020
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Reviewer's Report
<p>Quality of the thesis should be estimated as very good. Overall structure of the dissertation corresponds to research goals and to an order of description of research results.</p> <p>The topic of dissertation work reflects its actual content entirely.</p> <p>A comprehensive experimental and numerical modeling of different thermal EOR methods - hot water injection, supercritical water injection, high-pressure air injection, and in-situ combustion - was performed by A.Askarova to select a methodology of development for carbonate and unconventional reservoirs. The approaches and methods used by the dissertator are relevant, they allowed the dissertator to describe comprehensively the kinetics of the thermal processes and to estimate the applicability of the methods under consideration. The scientific results described in the dissertation should be characterized as significant. The experimental study of forward and reverse combustion conducted by A.Askarova and the study results should be estimated as unique in the world petroleum engineering science. Other results obtained by the dissertator correspond to the international scientific level and current state of the art in petroleum science and engineering.</p>

The research results described by A.Askarova in the thesis are relevant to their scientific and industrial applications. E.g. numerical simulation of forward combustion can be further employed during the field-scale simulation.

The scientific results of A.Askarova were published widely: the dissertator has four publications in Q1 journals and five publications in proceedings of international conferences. The quality of the publications should be estimated as high.

Provisional Recommendation

I recommend that the candidate should defend the thesis by means of a formal thesis defense