Skoltech
Skolkovo Institute of Science and Technology

Jury Member Report – Doctor of Philosophy thesis.

Name of Candidate: Aliya Mukhametdinova

PhD Program: Petroleum Engineering

Title of Thesis: Investigation of reservoir properties of unconventional reservoirs using low-field nuclear magnetic resonance

Supervisor: Associate Professor Alexey Cheremisin

Name of the Reviewer: Yuri Popov

I confirm the absence of any conflict of interest (Alternatively, Reviewer can formulate a possible conflict)	**Date: 16-02-2021**

The purpose of this report is to obtain an independent review from the members of PhD defense Jury before the thesis defense. The members of PhD defense Jury are asked to submit signed copy of the report at least 30 days prior the thesis defense. The Reviewers are asked to bring a copy of the completed report to the thesis defense and to discuss the contents of each report with each other before the thesis defense.

If the reviewers have any queries about the thesis which they wish to raise in advance, please contact the Chair of the Jury.

Reviewer's Report

Reviewers report should contain the following items:

- Brief evaluation of the thesis quality and overall structure of the dissertation.
- The relevance of the topic of dissertation work to its actual content
- The relevance of the methods used in the dissertation
- The scientific significance of the results obtained and their compliance with the international level and current state of the art
- The relevance of the obtained results to applications (if applicable)
- The quality of publications

The summary of issues to be addressed before/during the thesis defense

The thesis quality should be estimated as good accounting for level of research methodology, novelty of research results, their practical importance, total amount, quality and level of corresponding publications.

The overall structure of the dissertation is quite reasonable. It corresponds to key points of the research directions and research results described in the thesis.

The topic of dissertation work corresponds well to its actual content.

The research methods used in the dissertation should be estimated as quite relevant.

The scientific results obtained are significant and correspond to the international level and current state of the art.

The designed methodology was successfully implemented on the example of investigation of rocks of the Domanik and Bazhenov formations.

The quality and amount of publications in international journals and proceedings of international conferences correspond well to current requirements to the PhD thesis in Skoltech.

THE SUMMARY OF ISSUES

1. Metrological aspects are not described in the thesis at all practically that is not acceptable for the experimental work. The measurement quality should be estimated with description of measurements precision, accuracy and uncertainty at least shortly with mentioning approaches applied for estimations of these parameters.
2. Recommendations:
   - Inessential technical error should be removed in formula (5), Page 71.
   - The information on determination coefficient should be removed from Figure 82 where regression equation based on two elements (!) is given.
   - Regression equations would be useful for experimental data shown in Figures 75 and 76.

Provisional Recommendation

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

Professor Yuri Popov