

## Jury Member Report – Doctor of Philosophy thesis.

**Name of Candidate:** Nadezhda Khaustova

**PhD Program:** Petroleum Engineering

**Title of Thesis:** Uranium accumulation in marine source rocks: role of redox conditions and correlation with productivity

**Supervisor:** Professor Mikhail Spasennykh

**Co-supervisors:** Professor Yuri Popov  
Dr. Elena Kozlova

**Name of the Reviewer:** Dmitry Koroteev

I confirm the absence of any conflict of interest

**Date:** 14-09-2022

### Reviewer's Report

Nadezhda's thesis aims correlating the uranium content of rocks with their potential hydrocarbon productivity.

The thesis is of a good scientific quality. It is structured very well. The topic of the dissertation is relevant to its actual content.

Nadezhda used many samples from Black sea and several seas of the Arctic Ocean. She used wide variety of the methods starting from photo-based lithology description to mass spectrometry. The methods are absolutely relevant and up-to-date.

The results obtained by Nadezhda are on the international level of the top-notch research in this area. That is supported by her publications in q1 and q2 journals and the patent. The summary of the results in table 34 looks extremely impressive and very fit to the practical applications.

I see only a couple issues to be addressed before the presentation.

1. I would like to see a more detailed discussion on how the results (e.g. ones summarized in the table 34) could help the reservoir engineers to plan the potential field development in the areas studied by Nadezhda. I would also like to read more considerations about applicability of the studies done by Nadezhda to other formations worldwide.

2. I would add a graphical representation of the importance of various factors influencing the uranium concentration and productivity to the conclusion.

Overall, I fully support Nadezhda's thesis and wish her to present the results with a great passion during the defense.

**Provisional Recommendation**

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

*I recommend that the candidate should defend the thesis by means of a formal thesis defense only after appropriate changes would be introduced in candidate's thesis according to the recommendations of the present report*

*The thesis is not acceptable and I recommend that the candidate be exempt from the formal thesis defense*