

## 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:

<p>I confirm the absence of any conflict of interest</p> <p>(Alternatively, Reviewer can formulate a possible conflict)</p>	<p><b>Signature:</b></p>  <p><b>Date: DD-MM-YYYY 09-11-202</b></p>
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*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

Different enhanced oil recovery (EOR) methods, such as hot water injection (HWI), supercritical water injection, high-pressure air injection (HPAI), and in-situ combustion (ISC), have been studied for heavy oil recovery. Extensive experimental and numerical studies have been performed. It is a high-quality PhD thesis. The topic of the thesis work is relevant to its actual content, and the methodologies used sound logic and relevant as well. Moreover, the obtained results in the thesis are useful in practice, and comply with the international level. The student also published several high-quality papers in international journals.

My only concern is that since such EOR methods as hot water injection (HWI), supercritical water injection, high-pressure air injection (HPAI), and in-situ combustion (ISC) have been widely applied and studied, this thesis needs to emphasize what the novel and new contributions it makes in the Abstract and Introduction.

#### 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*