



FIKI HIDAYAT &lt;fikihidayat@eng.uir.ac.id&gt;

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## Submission Confirmation

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**Materials Today Proceedings** <eesserver@eesmail.elsevier.com>

Fri, Oct 11, 2019 at 1:21 PM

Reply-To: Materials Today Proceedings &lt;matpr@elsevier.com&gt;

To: fikihidayat@eng.uir.ac.id

\*\*\* Automated email sent by the system \*\*\*

Dear Mr. Fiki Hidayat,

We have received your article "Determination of Optimum CO<sub>2</sub> Water Alternating Gas (CO<sub>2</sub>-WAG) Ratio in Sumatera Light Oil-Field" for consideration for publication in Materials Today: Proceedings.

Your manuscript will be given a reference number once an editor has been assigned.

To track the status of your paper, please do the following:

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FIKI HIDAYAT &lt;fikihidayat@eng.uir.ac.id&gt;

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## Please edit your submission

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**Materials Today Proceedings** <eesserver@eesmail.elsevier.com>

Sun, Oct 13, 2019 at 7:08 AM

Reply-To: Materials Today Proceedings <matpr@elsevier.com>

To: fikihidayat@eng.uir.ac.id

Re:  
Title: Determination of Optimum CO<sub>2</sub> Water Alternating Gas (CO<sub>2</sub>-WAG) Ratio in Sumatera Light Oil-Field

Dear Mr. Hidayat,

Your submission entitled "Determination of Optimum CO<sub>2</sub> Water Alternating Gas (CO<sub>2</sub>-WAG) Ratio in Sumatera Light Oil-Field" has been received by Materials Today: Proceedings.

However, before we can proceed with the review process we ask you to address the following:

1) Figures should be uploaded as separate files.

Please log onto Elsevier Editorial System as an Author:

<https://ees.elsevier.com/matpr/>

1. Go to the menu item "Submissions/Revisions Sent Back to Author".
2. Click "Edit Submission/Revision".
3. Click on the relevant submission step on the left-hand menu;
4. Provide or modify the item/information as requested.
5. Go to "Attach Files" and "Build PDF for my Approval".
6. View and Approve your new PDF file including the changed item(s), or if needed, Edit again.

Thank you for submitting your work to the journal, and if you have any questions, please don't hesitate to contact me.

Yours sincerely,

Materials Today: Proceedings



FIKI HIDAYAT &lt;fikihidayat@eng.uir.ac.id&gt;

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**A manuscript number has been assigned: MATPR-D-19-02456**

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**Materials Today Proceedings** <eesserver@eesmail.elsevier.com>

Thu, Oct 24, 2019 at 7:14 PM

Reply-To: Materials Today Proceedings &lt;matpr@elsevier.com&gt;

To: fikihidayat@eng.uir.ac.id

Ms. Ref. No.: MATPR-D-19-02456

Title: Determination of Optimum CO<sub>2</sub> Water Alternating Gas (CO<sub>2</sub>-WAG) Ratio in Sumatera Light Oil-Field

Materials Today: Proceedings

Dear Mr. Fiki Hidayat,

Your submission "Determination of Optimum CO<sub>2</sub> Water Alternating Gas (CO<sub>2</sub>-WAG) Ratio in Sumatera Light Oil-Field" has been assigned manuscript number MATPR-D-19-02456.

To track the status of your paper, please do the following:

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Thank you for submitting your work to Materials Today: Proceedings.

Kind regards,

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FIKI HIDAYAT &lt;fikihidayat@eng.uir.ac.id&gt;

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## Your Submission

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**Zaini Ahmad** <eesserver@eesmail.elsevier.com>

Tue, Apr 7, 2020 at 12:49 PM

Reply-To: Zaini Ahmad <azaini@utm.my>

To: fikihidayat@eng.uir.ac.id

Cc: kamaruddinhamid@utm.my, kamaruddin@cheme.utm.my

Ms. Ref. No.: MATPR-D-19-02456

Title: Determination of Optimum CO<sub>2</sub> Water Alternating Gas (CO<sub>2</sub>-WAG) Ratio in Sumatera Light Oil-Field  
Materials Today: Proceedings

Dear Mr. Fiki Hidayat,

The reviewers have commented on your above paper. They indicated that it is not acceptable for publication in its present form.

However, if you feel that you can suitably address the reviewers' comments (included below), I invite you to revise and resubmit your manuscript on (or) before Apr 14, 2020 .

Please carefully address the issues raised in the comments.

If you are submitting a revised manuscript, please also:

a) outline each change made (point by point) as raised in the reviewer comments

AND/OR

b) provide a suitable rebuttal to each reviewer comment not addressed

To submit your revision, please do the following:

1. Go to: <https://ees.elsevier.com/matpr/>
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This takes you to the Author Main Menu.
4. Click [Submissions Needing Revision]  
I look forward to receiving your revised manuscript.

Yours sincerely,

Zaini Ahmad, PhD  
Managing Guest Editor  
Materials Today: Proceedings

Reviewers' comments:

Reviewer #1: In this manuscript, the authors reported the "Determination of Optimum CO<sub>2</sub> Water Alternating Gas (CO<sub>2</sub>-WAG) Ratio in Sumatera Light Oil-Field". In general, the overall write-up required minor revision as the data are relatively well interpreted and explained. My specific comments are found in detailed below:

- 1) Format and others:

- i. Some of the references in references list did not follow the correct format of Materials Today: Proceedings.
- ii. Capital letter of F for Figure 3. "Then at the end of the third cycle, there is an increase in pressure as in figure 3," (Figure 3).
- iii. Consistency for the term used in the text:
  - Sumatera Light-Oil Field (Abstract: Sumatera light-oil Field).
  - three-phase oil residuals (Results and Discussion: 3 phase oil residuals).
  - Label for the unit in all the figures should be consistent. For instance: Figure 1: y-axis-Oil Production Rate (bbl/day), x-axis: Time (day); Figure 2: y-axis: Oil Viscosity, cp, x-axis: Time (day); Figure 3: y-axis: Reservoir Pressure, psi, x-axis: Time, day. Please use consistent "(" symbol for all the unit label in y- and x- axis.
- iv. Incorrect symbol used for the ratio (1;3) in section 3. Case Study. Please change to (1:3).
- v. Spacing in Section 3. Case Study ("According to previous studywho conducted laboratory studies...."). Please provide a space between study and who (study who).
- vi. Missing comma in Section 4. Results and Discussion:
  - "In addition, in this study the value of CO<sub>2</sub> utilization is also relatively....." (in this study, the value.....).
- vii. - "Meanwhile, in the 1:2 injection scenario the increase in viscosity....." (Meanwhile, in the 1:2 injection scenario, the increase in viscosity.....).
- viii. Figure 4(a) and 4(b) should be place on the same caption. Otherwise, please use the sequence numbering system for those figures (Figure 4(a) should be change to Figure 4, and Figure 4(b) should be change to Figure 5). Description in text also should be change accordingly.
- ix. Label in Figure 4(b) "Basecase". The red underline should be remove.
- x. Abbreviation:
  - PV (full name "Pore Volume" followed by an abbreviation (PV)).
  - MMP (full name "Minimum Miscible Pressure" followed by an abbreviation (MMP)).
  - The abbreviation for "Sor" should appear in the text for the first time once the authors mention about residual oil saturation. Authors can use the "Sor" abbreviation for the next residual oil saturation terms in the text.

## 2) Contents:

### i. Methods:

- Initial oil properties (density, viscosity, and API gravity value), water properties (salinity and viscosity), and reservoir properties (porosity, permeability, wettability) for Sumatera Light-Oil Field used in this case study should be mention in the text. Did all the parameters set in CMG similar to actual reservoir condition?
- Any assumptions and parameters set in CMG should be mention.

### ii. Results and Discussion:

- "The effect of CO<sub>2</sub> in reducing oil viscosity in this study is not too large. This is caused by initial low oil viscosity, which is only 0.39 cp."

Based on Figure 2, as compared to initial oil viscosity, the viscosity of oil is increasing insignificantly (less than 26%) over time (from 0.39 cp to about 0.5 cp). Please correct the sentence since the viscosity of oil is increasing and not reduced as mentioned in the text.

- "At basecase, oil viscosity increased from 0.39 cp to 0.521 cp. Increased oil viscosity occurs when the reservoir pressure is below the bubble point pressure. This causes the gas to escape its solubility with oil [31]. Meanwhile, oil viscosity in three CO<sub>2</sub>-WAG scenarios initially increased to 0.524 cp, then decreased when entering the end of the first cycle. The biggest decrease in viscosity from the highest condition was obtained in the scenario with a ratio of 2:1, which decreased from 0.524 cp to 0.516 cp. This ratio is a WAG injection with more CO<sub>2</sub>. Injection with a 1:1 ratio has decreased viscosity from 0.524 cp to 0.519 cp. This value is less than the decrease in viscosity given by a 2:1 ratio. This means that in a greater amount, the role of CO<sub>2</sub> gas in reducing viscosity in this field is also greater."

It is better to compare the viscosity reduction for different WAG ratio in terms of reduction percentages.

Reviewer #2: 1. The title is relevant, precise, and reflects the overall contents of the study

2. Abstract is the summary of the research work. The main parameters of the abstract are: what, how, and why. What: It includes definition of the research work means what is going on in research work. How: It covers methodology part means define a technique/ methodology that help to execute your research work. Why: It focus application of the research work means where it can use. Abstract should not be more than 250 to 450 word. Overall, your abstract may be more meaningful if you write your abstract as per above parameters.

3. The introduction section has a clear statement demonstrating that the focus of the study. The problem definition is stated clearly. There is a brief, well-articulated summary of research literature that substantiates the study.

4. Tables and figures should be accompanied by text that guides the reader's attention to significant results.

5. The discussion need to be more details to enhance the understanding of the reader.
6. The style of paper its not like research paper. Its more on review paper.
7. Proposed Algorithm/ Methodology is a process or set of rules to be followed in calculations or other problem-solving operations. It should be written in proper way with comments that help to understand. Overall, It may include step by step in this paper.
8. Need to add another testing to support and justify the main testing results obtained
9. A conclusion is the last part of something, its end or result. When you write a paper, you always end by summing up your arguments and drawing a conclusion about what you've been writing about. Overall, your paper may conclude better way.

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FIKI HIDAYAT &lt;fikhidayat@eng.uir.ac.id&gt;

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## Your Submission

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**Zaini Ahmad** <eesserver@eesmail.elsevier.com>

Sat, Apr 18, 2020 at 11:19 AM

Reply-To: Zaini Ahmad <azaini@utm.my>

To: fikhidayat@eng.uir.ac.id

Cc: agus@utm.my

Ms. Ref. No.: MATPR-D-19-02456R1

Title: Determination of Optimum CO<sub>2</sub> Water Alternating Gas (CO<sub>2</sub>-WAG) Ratio in Sumatera Light Oilfield

Materials Today: Proceedings

Dear Mr. Fiki Hidayat,

I am pleased to inform you that your paper "Determination of Optimum CO<sub>2</sub> Water Alternating Gas (CO<sub>2</sub>-WAG) Ratio in Sumatera Light Oilfield" has been accepted for publication in Materials Today: Proceedings.

Below are comments from the editor and reviewers.

Thank you for submitting your work to Materials Today: Proceedings.

Yours sincerely,

Zaini Ahmad, PhD  
Managing Guest Editor  
Materials Today: Proceedings

Comments from the editors and reviewers:

The authors have addressed all the comments

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