

Peer Review Report

Review Report on Heat recovery potential and hydrochemistry of mine discharges from Scotland's coalfields

Original Research, Earth Sci. Syst. Soc.

Reviewer: Mohammad Arzoo Ansari

Submitted on: 03 Jul 2022

Article DOI: 10.3389/esss.2022.10056

EVALUATION

Q 1 Please summarize the main findings of the study.

Please see the detail review report.

Q 2 Please highlight the limitations and strengths.

Please see the detail review report.

Q 3 Please comment on the methods, results and data interpretation. If there are any objective errors, or if the conclusions are not supported, you should detail your concerns.

Please see the detail review report.

Q 4 Check List

Is the English language of sufficient quality?

Yes.

Is the quality of the figures and tables satisfactory?

No.

Does the reference list cover the relevant literature adequately and in an unbiased manner?

Yes.

Are the statistical methods valid and correctly applied? (e.g. sample size, choice of test)

No.

If relevant, are the methods sufficiently documented to allow replication studies?

Yes.

Are the data underlying the study available in either the article, supplement, or deposited in a repository? (Sequence/expression data, protein/molecule characterizations, annotations, and taxonomy data are required to be deposited in public repositories prior to publication)

No.

Does the study adhere to ethical standards including ethics committee approval and consent procedure?

Yes.

If relevant, have standard biosecurity and institutional safety procedures been adhered to?

Not Applicable.

Q 5 Please provide your detailed review report to the editor and authors (including any comments on the Q4 Check List):

The MS deals with the assessment of the heat recovery potential and hydrochemistry of mine water discharges from coal mines in the Midland valley of Scotland. The authors collected samples of mines discharges at 57 locations to characterise the mine discharge water chemistry. Additionally, they also performed isotopic analysis of mine water.

The article is quite interesting and scientifically sound. However, the adapted approach is not novel. The analysis and interpretation, as well as the discussion of the results obtained comply with the standard.

The drafting of the manuscript appears to contain too much repetition and text book kind of discussion that is not required for the professional journal.

1. Rewrite the introduction section. The introduction is not properly presented and does not indicate the need of the current research and the novelty of the reported work. Please discuss advantages of heat exertion from low temp. geothermal systems of coal mines over heat extraction from natural aquifers.
2. The literature review seems incomplete. Please cite recent work.
3. Please improve discussion and data analysis parts to attract international reader. If possible, add additional data and more inputs.
4. Please incorporate in brief different modes of mine water heat exchange systems – such as open loop systems, closed loop systems, standing column, etc. Also discuss the performance of the systems during winter and long term potentiality.
5. Please discuss the groundwater circulation and flow pattern; water table fluctuation, type of aquifers and their geometry (cross-section).
6. Grammatical and typographic errors were observed. Correct it after carefully reading the whole MS.

QUALITY ASSESSMENT

Q 6 Originality	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q 7 Rigor	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q 8 Significance to the field	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q 9 Interest to a general audience	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q 10 Quality of the writing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q 11 Overall quality of the study	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>