PROJECT DETAILS

Project Title

The Influence of Bacterial Activities on Petrophysical and Wetting Properties of Subsurface Media during Underground Hydrogen Storage

Project Summary: aims, significance, expected outcomes and potential research impact.

Underground hydrogen storage (UHS) stands as a promising strategy in the pursuit of carbon net-zero objectives. However, a notable gap exists in practical research pertaining to bacterial activity during hydrogen storage. A comprehensive analysis of how bacterial activities affect the petrophysical characteristics and surface wetting properties of reservoir rocks during UHS remains lacking. This project endeavours to thoroughly assess the potential influence of bacterial activities on the contact angle in rock/brine/hydrogen system, while also investigating its effects on the reservoir petrophysical properties such as porosity, permeability, etc. The anticipated outcome of this study aims to enhance the efficiency of UHS operations by mitigating hydrogen loss.

Preferred applicant skill set, describe the capabilities of the HDR applicant.

We are looking for an exceptional PhD candidate who possesses a self-driven demeanor, outstanding communication and organizational skills, as well as extensive hands-on experience in laboratory. The project is experimental, thus necessitating a candidate who exhibits a keen willingness to rapidly acquire knowledge across various facets of the project. This includes a comprehensive understanding of the biogeochemical reactions that occur during UHS, with a particular emphasis on bacterial activity in subsurface media. Given the urgency of the position, candidates based in Australia are strongly encouraged to apply due to the immediate availability of the opportunity.

Contact person for the project:

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