# Position Details

## Research Scientist/Engineer- CSOF5

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| The following information is for applicants | |
| Advertised Job Title | Rock Properties Specialist |
| Job Reference | 94926 |
| Tenure | Specified Term of 3 years  Full-time |
| Salary Range | AU$105,806 - AU$114,500 per annum (pro-rata for part-time) plus up to 15.4% superannuation |
| Location(s) | Kensington, Perth, WA |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | * All Candidates |
| Position reports to the | Team Leader |
| Client Focus – Internal | 50% |
| Client Focus – External | 50% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Lionel Esteban via email at lionel.esteban@csiro.au or phone +61 8 6436 8927 |
| How to apply | Apply online at <https://jobs.csiro.au/>  Internal applicants please apply via **Jobs Central**  If you experience difficulties when applying, please email [careers.online@csiro.au](mailto:careers.online@csiro.au) or call 1300 984 220. |

**Acknowledgement of Country**

CSIRO acknowledges the Traditional Owners of the land, sea and waters, of the areas that we live and work on across Australia. We acknowledge their continuing connection to their culture and pay our respects to their Elders past and present. View our [vision towards reconciliation](https://www.csiro.au/en/about/Indigenous-engagement/Reconciliation-Action-Plan).

**Child Safety**

CSIRO is committed to the safety and wellbeing of all children and young people involved in our activities and programs. View our [Child Safe Policy](https://www.csiro.au/en/about/policies/child-safe-policy).

### Role Overview

The role of Research Scientist staff is to conduct innovative research leading to scientific achievements that are aligned with CSIRO’s strategies. The Research Scientist may be engaged in scientific activity ranging from fundamental research to the investigation of specific industry or community problems. The Research Scientist will have the opportunity to build and maintain networks, play a leading role in securing project funds, provide scientific leadership and pursue new ideas and approaches that create new concepts.

As part of the Rock Properties team, this role will contribute to the petrophysics and geomechanics laboratories at the forefront of research into CCS, hydrogen storage and natural hydrogen, with numerous opportunities coming in that require the rock characterisation these labs are renowned for. The role will mostly focus on delivering and interpreting state-of-the-art experimental data, developing/testing new experimental approaches, maintenance of the equipment and developing new capabilities.

The research scientist will be involved in a multi-disciplinary environment working with teams of scientists, engineers, technicians, and administrative support to tackle national and international scientific challenges, problem solving with partners and industries as well as delivering commercial research projects around decarbonation, the energy transition and critical minerals research focus.

### Duties and Key Result Areas

* Determination of standard petrophysical properties such as porosity, permeability, water content and saturation for application to research projects on subsurface hydrogen, carbon geo-sequestration and subsurface waste disposal.
* Interpretation of petrophysical wireline log data and upscaling from lab-determined properties to the field for integration into larger geological, reservoir/sealing quality assessment and petrophysical models, including the use of AI/ML, where relevant.
* Maintain and improve Health and Safety Environment in Petrophysical laboratories and related documents.
* Assist with and learn the principles of nuclear magnetic resonance (NMR) testing to understand fluid flow and retardation in reservoir and seal rocks for hydrogen and CCS applications.
* Improve and develop new experimental approaches with NMR data acquisition/processing to help fluid-rock interactions and transport properties on hydrogen and CCS topics.
* Acquire and process X-ray CT images on geo-materials as required by multiple research projects in petrophysics and geomechanics.
* Undertake geomechanical testing and research projects as needed.
* Under the supervision of more senior researchers, assist in the planning and preparation of research proposals and carry out research investigations, requiring originality, creativity and innovation.
* Supervision of MSc and PhD students on petrophysical related research. Provide support to visiting scientists from National/International institutions to develop research collaborations.
* Participate in identification of further funding opportunities which arise from research, and initiate new lines of research.
* Undertake activities focused on one or more elements of larger research projects.
* Present results in a meaningful format, prepare reports for clients and/or write scientific papers for publication.
* Work as part of a multi-disciplinary, regionally dispersed research team to carry out tasks in support of CSIRO’s science objectives.
* Adhere to the spirit and practices of CSIRO’s Code of Conduct, Health, Safety and Environment procedures and policies, Diversity initiatives and Zero Harm goals.

**Selection Criteria**

#### Essential

*Under CSIRO’s policy only those who meet all essential criteria can be appointed.*

1. A PhD with up to 5 years post-PhD experience (early career scientist) in petrophysics or geology.
2. Demonstrated ability to undertake original, creative and innovative research by generating and pursuing novel ideas and solutions to scientific research problems.
3. A demonstrated publication history of authorship on scientific papers in peer reviewed journals and/or reports, grant applications or inventorship on patent applications.
4. Research experience:

- Operate petrophysical equipment in a scientific laboratory

- Handle laboratory pressure vessels

- Familiarity with health and safety procedures in laboratory operations

- Geoscientific interpretations of petrophysical data

- Data integration of a broad range of physical properties, across multiple disciplines

- Participate in multi-disciplinary team(s) project(s)

1. Scientific/engineering technical skills required:

* Maintenance/repair of laboratory equipment
* Handling large and diverse datasets

**Desirable**

1. Experimental laboratory skills in:
   * Nuclear Magnetic Resonance spectroscopy (low and/or high frequency)
   * Porosity and permeability measurements (gas/liquid methods in conventional and tight rock formations)
   * Acquisition and processing of electrical resistivity data under ambient and reservoir pressure/temperature conditions (including integration/calibration with well log data)
   * Mercury Intrusion Porosimetry
   * X-ray CT image acquisition and processing with advanced software image processing (e.g., Avizo)
   * Rock mechanics/rock physics measurements under reservoir conditions
2. Experience in:
   * Core flooding experiments
   * Developing experimental protocols through a suite of laboratory techniques to address specific scientific questions, e.g. reservoir quality for long-term gas storage.
   * Testing unconventional rock formations: shales, salts, volcanics…
   * General knowledge of gas physico-chemical characteristics under elevated pressure and temperature (H2, (supercritical) CO2)
3. General knowledge geochemical rock interactions with water, CO2, H2…
4. General knowledge of coding with modern tools (e.g., python, matlab…)
5. Experience with student supervision and/or teaching
6. Well log analysis/interpretation

## **Required Competencies**

* **Teamwork and Collaboration:** Cooperates with others to achieve organisational objectives and may share team resources in order to do this. Collaborates with other teams as well as industry colleagues.
* **Influence and Communication:** Uses knowledge of other party's priorities and adapts presentations or discussions to appeal to the interests and level of the audience. Anticipates and prepares for others’ reactions.
* **Resource Management/Leadership:** Allocates activities, directs tasks and manages resources to meet objectives. Provides coaching and on the job training, recognises and supports staff achievements and fosters open communication in the team.
* **Judgement and Problem Solving:** Investigates underlying issues of complex and ill-defined problems and develops appropriate responses by adapting/creating and testing alternative solutions.
* **Independence:** Plans, sets and works to meet challenging standards and goals for self and/or others. Recognises where endeavours will make the most impact or difference, decides on desired outcome and sets realistic goals to reach this target.
* **Adaptability:**Copes with ambiguity or situations that lack clarity. Adapts readily to changing circumstances and new responsibilities (which may include activities outside own preferences) in the interests of achieving team objectives. Recognises the need for and undertakes personal development as a result of change.

Special Requirements

Appointment to this role is subject to provision of a pre-employment background check and may be subject to other security/medical/character clearance requirements.

* The successful candidate will undertake a pre-employment background check. Please note that individuals with criminal records are not automatically deemed ineligible. Each application will be considered on its merits.
* If the successful candidate is not an Australian Citizen or Permanent Resident, they may be required to undergo additional security clearances, which may include medical examinations and an international standardised test of English language proficiency (i.e. IELTS test).- https://ielts.com.au/

## **About CSIRO**

We solve the greatest challenges through innovative science and technology. Visit [CSIRO Online](http://www.csiro.au/) and [CSIRO Energy](https://www.csiro.au/en/research/technology-space/energy) for more information.

CSIRO is a values-based organisation.  In your application and at interview you will need to demonstrate behaviours aligned to our values of:

* People First
* Further Together
* Making it Real
* Trusted