# Research Scientist/Engineer – CSOF5

Role summary for potential applicants

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| Advertised Job Title**:** | Computational Geo-Environmental Engineer |
| Reference Number**:** | 56597  |
| Classification**:** | CSOF5 |
| Salary Range: | AU $95Kto AU $103K plus up to 15.4% superannuation |
| Location**:** | Adelaide (Waite Campus), South Australia |
| Tenure: | Specified Term of 3 years |
| Relocation assistance**:** | Will be provided to the successful candidate if required. |
| Applications are open to: | All Candidates |
| Functional Area**:** | Research Scientist / Engineer |
| % Client Focus - Internal: | 50% |
| % Client Focus - External: | 50% |
| Reports to the: | Team Leader |
| Number of Direct Reports: | 0 |

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| **Role Overview:** |
| The role of Research Scientist Staff in CSIRO is to conduct innovative research leading to scientific achievements that are aligned with CSIRO's strategies. You may be engaged in scientific activity ranging from fundamental research to the investigation of specific industry or community problems. You will have the opportunity to build and maintain networks, play a lead role in securing project funds, provide scientific leadership and pursue new ideas and approaches that create new concepts.The Computational Geo-environmental Engineer/Scientist will be a part of the Environmental Tracers and Applications team in Adelaide. The team sits within the Water Resources Management Program and operates one of the leading environmental tracer laboratories with strong noble gas analysis capability for groundwater studies. This role will undertake innovative research and deliver to high impact projects on demonstrating (i) containment capacity of deep crystalline rocks, clay-based sediments or salt rocks for radioactive waste disposal, (ii) degradation of engineered barriers under extreme temperature, pressure, and chemical boundary conditions, and (iii) post-closure repository safety assessment. The Computational Geo-environmental Engineer/Scientist will contribute to multi-disciplinary projects across CSIRO and its partners, in Australia and overseas. He/she will have the ability to use rare noble gas isotopes of rock pore fluids for making inferences about the hydraulic isolation capacity of host rocks and presence/absence of exposure pathways across the geosphere. |

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| **Duties and Key Result Areas:** |
| * Incorporate novel approaches to scientific investigations by adapting and/or developing original concepts and ideas for new, existing and further research.
* Contribute to projects in the radioactive waste management research discipline (noble gas isotope study of host rock pore fluids, specialist chemical thermodynamic simulation modelling of geo-environments and engineered barriers (including cementitious materials) and their interactions, demonstration of long-term containment of radioactive waste).
* Contribute coupled geo-environmental-materials science to projects in radioactive waste management, host rock characterization, and multi-scale fluid migration.
* Sustain strong scientific recognition through publication metrics, leadership in national and global geo-environmental science fora, and national and international reputation.
* Work closely with industry customers to deliver strong research outcomes, leading to adoption and impact from new practice and/or knowledge.
* Work closely with CSIRO Land and Water leaders to develop research ideas and business opportunities.
* Communicate effectively and respectfully in the interests of good business practice, collaboration and enhancement of CSIRO’s reputation.
* Produce high quality scientific and/or engineering papers suitable for publication in quality journals and for presentation at national and international conferences.
* Work effectively as part of a multi-disciplinary, often regionally dispersed research team, to undertake independent scientific investigations and carry out associated tasks under the guidance of more senior Research Scientists/Engineers.
* Under the guidance of Senior Research Scientists/ Engineers, work collaboratively and honestly with internal and external colleagues, clients and partners to help define and satisfy objectives for small to medium research projects.
* Assist in leading small research projects, including the negotiation of resource requirements.
* Provide coaching and on-the-job training to technical staff and students to ensure experiments are established in accordance with research design.
* Adhere to the spirit and practice of CSIRO’s Values, Health, Safety and Environment plans and policies, Diversity initiatives and Zero Harm goals.
* Other duties as directed.
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| **Selection Criteria:** |
| *Under CSIRO policy only those who meet all essential criteria can be appointed****Pre-Requisites:***1. **Education/Qualifications:** A doctorate or equivalent research experience in a relevant discipline area, such as Engineering (major civil engineering), Earth Sciences (major hydrogeology), Chemistry (major geochemistry).
2. **Communication:** Strong written and oral communication skills including the ability to publish research results, prepare reports and present the results of scientific investigations at national and international conferences and stakeholder meetings.
3. **Publications: A solid record of publication in quality, peer reviewed journals.**
4. **Behaviours: A history of professional and respectful behaviours and attitudes in a collaborative environment.**

***Essential Criteria:***1. Demonstrated expertise in hydrogeological conceptualisation of deep subsurface systems.
2. Expert skills in computer modelling of fluid flow and mass transport in porous media.
3. Track record in designing and/or evaluating engineered systems exposed to extreme geo-environmental conditions (high temperature and pressure and aggressive chemistry)
4. **The ability to work effectively as part of a multi-disciplinary, regionally dispersed research team, and carry out independent individual research, to achieve organisational goals.**
5. A record of science innovation and creativity plus the ability & willingness to incorporate novel ideas and approaches into scientific investigations.

**Desirable Criteria:**1. Specialist in chemical thermodynamic simulation modelling of geo-environments.
2. Multi-physics modelling of coupledthermo-hydro-chemo-mechanical processes.

**As Australia’s Innovation Catalyst, CSIRO has strategic actions underpinned by behaviours aligned to**:* Excellent science
* Inclusion, trust & respect
* Health, safety & environment
* Delivery on commitments.

**In your application and at interview you will need to demonstrate alignment with these behaviours.*****Special requirements:***There is potential for interstate and international travel in this role and the appointee must be willing and able to undertake this travel.Appointment to this role may be subject to conditions including security/medical/character clearance requirements. Applicants who are not Australian Citizens or Permanent Residents may be required to undergo additional security clearance processes; which may include medical examinations and an international standardised test of English language proficiency (i.e. IELTS test).- <http://www.ielts.org/default.aspx>. |

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| **Other Information:** |
| **How to Apply**Please apply for this position online at <https://jobs.csiro.au/> and enter requisition number **56597**. Internal applicants please apply via ‘Jobs Central’ in SAP (click ‘Recruitment’).Please load your CV (Maximum 2MB). You may also be required to respond to some screening questions.  If you experience difficulties applying online call 1300 984 220 for assistance. Outside Australian business hours please email: csiro-careers@csiro.au. **Referees**: Please provide contact details of two previous supervisor or academic/professional referees in your resume/CV. We will ask your permission before making contact. **Contact:** If after reading the position details above you require more information please contact:**Dr Dirk Mallants**via email: dirk.mallants@csiro.au or phone: +61 8 8303 8595Please do not email your application directly to Dr Mallants. Applications received via this method may not be considered by the selection panel.**About CSIRO**Australia is founding its future on science and innovation. Its national science agency, the Commonwealth Scientific and Industrial Research Organisation (CSIRO) is a powerhouse of ideas, technologies and skills for building prosperity, growth, health and sustainability. It serves governments, industries, business and communities across the nation. Find out more! [www.csiro.au](http://www.csiro.au). We work flexibly at CSIRO, offering a range of options for how, when and where you work. Talk to us about how this role could be flexible for you. Find out more! [CSIRO Balance](https://www.csiro.au/en/Careers/A-great-place-to-work/Work-life-balance) **CSIRO Land and Water p**rovide the science to underpin Australia’s economic, social and environmental prosperity through stewardship of land and water resources ecosystems, and urban areas.Land and Water is delivering the knowledge and innovation needed to underpin the sustainable management of our land, water, and ecosystem biodiversity assets. Through an integrated systems research approach we provide the information and technologies required by government, industry and the Australian and international communities to protect, restore, and manage natural and built environments. Land and Water is a national and international partnership led by CSIRO and involving leading research providers from the national and global innovation systems. Our expertise addresses Australia’s national challenges and is increasingly supporting developed and developing nations response to complex economic, social, and environmental issues related to water, land, cities, and ecosystems. |