RSO PhD bursary call: Guidance for submission and assessment criteria

The Research Waste Management Research Support Office (RWM RSO) is requesting applications to the 2021 PhD bursary call. The scheme will provide funding to UK academic institutions for PhD projects. The aim of the RWM RSO PhD bursary call is to develop a portfolio of PhD projects focused on key RWM research priorities. This scheme will train the next generation of geological disposal scientists, engineers and other researchers, and expand all aspects of the geological disposal academic research community throughout the UK.

The specific aims of the programme are to:

- Develop key skills required for RWM's research mission over the coming decades, and to help deliver the next generation of geological disposal scientists and engineers
- Develop fundamental understanding of technologies and processes related to the geological disposal of radioactive waste
- Encourage collaboration and communication between RWM and the academic community

The RWM RSO PhD studentship scheme is expected to run annually for several years with the expectation that approximately 10-15 new projects will be started each year. Students funded by RWM through the RSO have access to a growing geological disposal research community, training, and networking opportunities. Each project proposal is expected to have a total cost to RWM of less than £120,000. Projects that can offer added value will be viewed favourably, for example by identifying co-funding from universities or third parties (either anticipated or confirmed) and/or in-kind contributions. Universities and research groups that have not previously received funding from RWM are particularly encouraged to apply.

Call structure

Request for proposal sent on:	25/11/2021
Clarifications period closes on:	16/12/2021
Request for proposal closes on:	14/01/2022

The contractual arrangements for the PhD studentships will be administered by RWM. A copy of the RWM PhD contract can be found here. All investigators/Universities submitting a proposal must confirm that they will accept the RWM terms and conditions outlined in the contract, if they are awarded funding. If you have any clarification questions (including commercial, technical, requests for flexibility in the deadline and regarding the contract) they should be sent before the **clarification period** is closed and addressed to the RSO via rso-gdf@manchester.ac.uk.

Any clarification questions or proposed changes to the scope of the project and/or grant agreement terms will be addressed by RWM and will only be considered during the Clarification period stated above and will not be accepted after proposal submission.

Proposals will be accepted until 12:00 on 14/01/2022 as Word documents and supporting materials emailed to the RSO inbox: rso-gdf@manchester.ac.uk. Applications will be assessed by RWM.

RWM RSO PhD students

Students will become part of the 2022 cohort of RWM RSO PhD students. They will have access to additional training and networking opportunities and be asked to present their research at the annual RSO conference. Proposals should factor in attendance at RSO events, and at bi-annual meetings with RWM and with other RWM-sponsored PhD students working in similar fields. These events will facilitate knowledge exchange between the PhD students and RWM, and build up a long-term support network between the students.

PhD research projects

Applications are welcome to any of the PhD research projects listed below, or to the open topic area. Full briefs for the PhD research projects can be found in the supporting documentation.

1) Remote inspection of high integrity welds in high radiation environment
2) Fracturing of mudstone interbeds due to halite creep, and implications for the performance of a geological disposal facility for radioactive waste
3) Developing fundamental understanding of porosity evolution in compacted bentonite
4) New Materials Assessment for Underground Space in the GDF
5) Coastal Change
6) Non-radiological pollutants on non-human biota
7) Investigating alternative materials to clay-based materials for use as a buffer and backfill material in disposal concepts for high heat generating wastes
8) Investigating Diffusivity in LSSR rocks
9) Excavation-Disturbed Zone in Clays – Extent, Evolution and Effects on Properties Relating to Groundwater and Gas Movement
10) Lithological control on the gas transport properties of the Mercia Mudstone Group
11) Machine learning methodologies for optimised gas transport characterisation
12) Representing groundwater flow in deep, heterolithic sedimentary sequences
13) Behaviour of Magnox Fuel Cladding under Geological Disposal Facility Conditions
14) Investigating the impact of high ionic strength groundwaters on bentonite performance in a geological disposal facility
15) Interaction of cement backfill with LSSR groundwater solutes and geological host
16) Impacts of EBS on groundwater influx to waste disposal containers
17) Gas migration through GDF interfaces
18) The co-mobility of actinides and neutron poisons in variant disposal scenarios
19) The effect of groundwater salinity on radionuclide behaviour
20) Understanding the behaviour of natural analogues of immobilised plutonium wasteforms

Open topic

The open topic category is available for research projects related to the geological disposal of radioactive waste that are not associated with any of the other topic areas and is a way of the academic community proposing PhD research ideas to RWM. This would include any research that supports the RWM science and technology plan.

When developing a proposal please ensure you explain how the project aligns with the research outlined in the latest RWM science and technology plan.

The proposal will be assessed based on the answers to the following:

1) Confirm that the PhD project would start October 2022 and complete in 4 years

Applicants are requested to confirm the project will be able to start in October 2022 and be completed within 4 years.

PASS/FAIL

2) Acceptance of the attached terms and conditions of the bursary is mandatory:

- Acceptance of the attached RWM terms and conditions is mandatory. A completed grant agreement is not needed with the application, but will be required if funding is awarded.
- If the grant agreement is not signed on award, then funding will not be issued.
- If after the grant award the grant agreement is not signed within 30 days, then RWM reserves the right to withdraw the award of the grant.

PASS/FAIL	See "RWM template grant agreement PhD 2021"

3) Evaluation criteria:

Scoring criteria	***Score***	***Weighting (out of 100%)***	***Description and guidance notes***
Alignment to brief and technical understanding If applying to a specific project, please provide a clear proposal demonstrating alignment to the brief, or in the case of fulfilment of partial scope, please outline clearly the aspects of the brief to be fulfilled. If you are applying to the open call, please clearly identify where the research aligns with the RWM science and technology plan.	/4	30%	Responses should include: - A demonstrable understanding of the challenge area and complexities within that, referring to the research brief; - A demonstrable understanding of the technical and research background of the challenge area
Project management Please define the necessary timescales, including a project work plan and/or Gantt chart. If experimental work will be	/4	20%	- A project plan / Gantt chart showing key phases of work, milestones and deliverables including completing within required period of time; - Clearly define any input / time / resources that would be required from

undertaken, a clear strategy for delivering, analysing and synthesising appropriate data should be detailed.			RWM, excluding industrial supervision, to support or enable the project, such as security clearance, sample access or site visit to a licensed site; - Identify any major risks to the research and mitigation that can be considered against these risks, including any risks of the research to be extended past agreed period of time; - Identify any use of external facilities, such as NNUF or other national / international infrastructure and demonstrate that proposed activity has been discussed in advance with the relevant facility owners and is feasible within the bounds of the proposal.
Supervisory Team Please show how the supervisory team has the required expertise in the relevant areas.	/4	10%	Expertise required in an appropriate field for the proposed research, evidenced by e.g. journal papers, reports. This section will be assessed in relation to career stage and experience. The inclusion of early career researchers, and / or researchers new to radioactive waste disposal, in the supervisory team is encouraged.
Training Skills and capability generation.	/4	10%	Identify the researcher skills that will be developed by the proposed project and why they are relevant to the future of RWM. Show how skills will be developed within the wider supervisory team.
Budget Please provide a costed proposal, identifying additional 'in-kind' contributions which you can bring to the PhD project.	/4	30%	Identify cost breakdown between Tuition Fees, Stipend and Research & Training Grant, providing details of the estimates. Provide information on any secured or applied for funds or in-kind contributions to enhance the PhD. Eligible and ineligible costs are outlined in clauses 8.2 and 8.3 of the grant agreement. Any costs that would be reasonably expected for a PhD project and not specified as ineligible in the grant agreement would be eligible.

Scoring criteria:
0= No response or response does not meet any requirements
1= Marginal response with significant drawbacks or omissions
2= Acceptable response, meeting most criteria with only minor drawbacks or omissions
3= Good response which meets all requirements
4= Excellent response which meets and exceeds requirements