**Groundwater Review Group – Role Specification**

**Context**

RWM’s Groundwater Review Group (GWRG) provides scrutiny and advice on RWM’s groundwater programme required for the delivery of a Geological Disposal Facility (GDF). The GWRG acts as a supportive critical friend to RWM’s groundwater programme, drawing on expertise of RWM’s and UK predecessor programmes, and international programmes in a variety of geological environments, as well promulgating relevant knowledge and learning from non-nuclear fields. To join RWM intelligent client (IC) staff we are currently seeking an external expert to bring expertise regarding groundwater chemistry to the group.

One of the activities performed by the GWRG is to review and scope the forward work plans for RWM’s Groundwater work. In this context Groundwater research covers a broad range of topics, including (but not limited to):

* the development and production of site descriptive models (SDM’s) based on site characterisation data
* development of new / novel field techniques and equipment
* groundwater movement modelling using a range of conceptual model approaches and codes (3D representation, considering space and time evolution)
* modelling of groundwater chemistry evolution and development of reference groundwaters
* Understanding the perturbations to the geosphere associated with construction and closure of a GDF
* coupled process modelling – thermal, hydraulic, mechanical and chemical interactions associated with the GDF, at all parts of the flow path (including modelling of the engineered barrier system)
* scoping and planning underground / *in situ* and laboratory experiments, and delivering work-in-kind to partner projects at underground rock laboratories
* furthering understanding of the role of groundwater movement and groundwater chemistry in the Engineering Damaged Zone (EDZ) and Borehole Damaged Zone (BDZ)
* understanding and representing two-phase flow in the geosphere and biosphere

Our external experts need to be independent of RWM’s programme. RWM draws specific attention to the fact that participation to the GWRG would give a competitive advantage that may preclude that expert (or their organisation) from leading or active involvement in competitive tenders for any of the work that is planned / discussed at the GWRG. RWM does, however, realise that the pool of experts able to respond to this call is limited, therefore an expert appointed to the GWRG, could work as a subcontractor / supplier to a bid prepared by another contractor, on the basis that information from the GWRG is retained by expert as confidential during the tendering process.

**Scope of Works**

RWM is looking for an expert to join the GWRG to bring a significant breadth and depth of expertise and experience of UK and international programmes (those with UK relevant geological environments).

The skills / expertise required for the role is outlined below.

The role is required in FY20/21 and FY21/22. The following labour effort should be expected:

FY20/21

* Attendance at one GWRG workshop, duration of 1.75 days, to be held at / near to RWM’s Harwell office
* Allowance of three days (in addition to attendance of the workshop) for review / provision of materials before, and following, the GWRG workshop
* Allowance for two additional days support to RWM’s groundwater programme, to be used for the review of the scope / technical specifications for projects in planning, and / or advice on next steps following review of project specific materials. These interactions will be remote, and travel to Harwell is not required.

FY21/22

* Attendance at two GWRG meetings, duration and location as per previous
* Allowance of a total of six days additional time for pre / post GWRG workshop activities
* Allowance of three additional days to support RWM’s groundwater programme, for similar scope as per above.

**Experience and Expertise Specification**

The experience and expertise required for this role is outlined below.

Groundwater Chemist Expert

* Degree in a relevant groundwater / geoscience discipline
* Recognised international expert in the field of groundwater chemistry, with skills relevant to a variety of potential GDF host rocks (clay, salt, higher strength rock) as well as the surrounding geological environment, demonstrated by:
	+ Previous experience of reviewing and using groundwater chemistry\* site data / information to support characterisation of a site for a GDF, including development of a Site Descriptive Model (SDM) – preferably drawing on past experience of planning / delivering groundwater chemistry field works to support GDF programmes
	+ Extensive publication record – including as first author, relating to research /site characterisation for UK and international GDF programmes - specifically regarding groundwater chemistry
	+ Track record of providing advice, support and scrutiny to (and of) UK and International GDF programmes
	+ Application of groundwater knowledge to understand the fate and mobility of radionuclides in groundwater
	+ Depth of understanding of groundwater chemistry research ongoing, and resource capability existing in UK and international research institutions – preferably drawing on previous collaborations undertaken with researchers / research entities
	+ Thorough understanding of state of knowledge techniques for sampling / analysis of groundwaters and pore waters to support GDF programmes
	+ Critical appraisal of the appropriate use of analogues to support GDF programmes
	+ Thorough understanding of the use of a range of numerical and modelling techniques that can be employed to characterise the groundwater setting in low-permeability rocks
* In depth understanding of regulatory drivers, and the requirements that regulatory requirements place on groundwater programmes of UK and international GDF programmes – this may be demonstrated by working for / on behalf of regulators of international GDF programmes, or representing review groups providing scrutiny of the UK GDF programme

\*groundwater chemistry data / information – the expert will need to have knowledge on the appropriate use of reactive and stable isotopes, conservative and non-conservative tracers, and have a critical awareness of benefits / limitations of techniques used for abstraction of pore waters and analysis of dissolved gases.

An initial screening exercise will be undertaken to evaluate whether a competitive tendering process is required. If you are interested in participation in the GWRG we would be pleased to review your CV as part of the screening process. CV’s will be evaluated against the role criteria above.