

Chartership guidance note for hydrogeologists

Hydrogeology is the specialism within the geosciences that evaluates and quantifies the movement of water through the ground. The majority of hydrogeologists have a first degree in geoscience and then an MSc in hydrogeology or a PhD on a groundwater-based topic. However, some also enter the profession after obtaining an MSc in hydrogeology following on from a first degree in mathematics, engineering or non geological science subject.

Candidates may apply for Chartered Geologist (CGeol) or Chartered Scientist (CSci), both of which have equal standing and convey the same professional status. Candidates applying for CGeol must specifically prove their competence against the following Chartership criteria:

1. Understanding of the complexities of geology and of geological processes in space and time in relation to their speciality.
2. Critical evaluation of geoscience information to generate predictive models.

A first degree in a non-geological subject does not preclude candidates from successfully achieving CGeol status providing the above competences are met. Candidates who cannot meet these requirements may find it more appropriate to demonstrate competence under the criteria for CSci. Candidates should seek advice and guidance from their mentor, and from the Chartership Officer at the Society in preparing their application, and for the most appropriate route to chartership.

There are a wide range of contexts in which hydrogeologists work and specialise including groundwater resource assessment; groundwater quality assessment; water well design, construction and operation; environmental impact assessments associated with groundwater abstractions, mining and quarrying, landfills, ground source heating, geothermal energy and construction works; groundwater pollution; and contaminated land.

Candidates are expected to have a working knowledge of all areas of hydrogeology, with detailed experience in their own particular area of specialism. As a guide, they are expected to be experienced and proficient in:

- Multi-dimensional conceptualisation; able to develop and update conceptual site models with particular emphasis on groundwater recharge and discharge from a regional to local scale and how groundwater flow might vary according to geological conditions
- Ground investigation for hydrogeological projects
- Field collection of groundwater quantity and quality data

And they are expected to have knowledge of:

- Borehole construction
- Hydrogeological Impact Assessments

- Groundwater pollution
- Contaminant hydrogeology
- Controlled waters risk assessments
- Groundwater modelling techniques
- Groundwater remediation techniques
- Environmental Management, including licensing and permitting.
- An appreciation of other related disciplines, including land contamination, hydrology, engineering geology, ecology and geophysics.

In addition to the scientific methods which inform their work, hydrogeologists should understand the legislation and regulations applying in their country of work. For example, in England and Wales (different versions apply in Scotland and Ireland) should, as a minimum, be conversant with the following:

- Water Resources Act 1991 and Water Act 2003
- Environmental Permitting Regulations 2010
- Water Framework Directive
- Environment Agency Groundwater Protection: Policy and Practice (GP3)

Hydrogeologists are encouraged to expand their experience throughout their professional career and also to structure their training so as to gain sufficient relevant experience to meet the requirement for Chartered Status. There is a risk that candidates may not be given sufficient opportunity to develop their skills across the wider spectrum of hydrogeological science. Therefore candidates must encourage their employers to support their training and professional development.