The Science Behind Success

Mine Environment Management Ltd
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Mine Environment Management Ltd

Who we are

Mine Environment Management (MEM) is an award-winning specialist geoscience and environmental engineering consultancy headquartered in Wales, UK.

In April, MEM joined Ecology Group, a growing group of ecological and environmental consultancies. This partnership brings continued investment in technology, professional development and long-term growth, while allowing MEM to retain the culture we have built since 2018: a highly specialised and motivated technical team working in a supportive, relaxed environment. As part of MEM, you will also have opportunities to collaborate with a wider network of specialists across the Group and further develop your expertise.

We provide practical, commercially focused solutions for the global mining industry across the full mine life cycle, from planning and operations through to closure and regeneration. MEM was founded to apply sound scientific principles to the development of innovative solutions for managing mining environments and mine waste.

Our team is currently delivering a range of innovative commercial and research projects internationally, often in partnership with specialist UK technical companies and universities. These projects span carbon sequestration, mine water quality assessment and treatment, tailings facility management, operational mine waste management and mine closure planning.

The opportunity

We are looking for a Geochemical Modeller to lead and expand our numerical modelling capability across international projects. You will combine field-based geoscience expertise with advanced computational workflows to model complex mine water and geochemical systems. We are particularly interested in candidates who can use software-led approaches to address challenges in carbon mineralisation and CO_2 sequestration, enhanced weathering of mine waste, and predictive source-term modelling.

The role is mainly desk based but also has the opportunity for international site work. Innovation is at the core of what we do. We boast a strong, proven track record in R&D. To support your professional growth, our leadership team actively encourages and sponsors our geoscientists to author scientific papers and present their findings at major global conferences.

This is a hybrid role and can be based at our North Wales headquarters in Denbigh, our Research Hub in Cardiff or our international office in Sweden. There may also be opportunities to work from other Ecology Group offices across the UK.

Key responsibilities

- **Predictive geochemical modelling:** Build and run advanced thermodynamic models to predict water quality from mine waste storage facilities and pit lakes.
- **Systems and water balance simulation:** Develop dynamic, risk-based models for water management and contaminant transport across full mine life cycles.
- **Data pipeline automation:** Write and maintain scripts that automate data workflows, connect modelling software and process large geological, climate and water datasets.
- **Acid and metalliferous drainage:** Lead, plan and manage site investigations and environmental geochemistry risk assessments.
- **Operational planning:** Review geochemical drill-hole assay databases, block models and waste schedules to develop operational waste placement concepts and facility cover systems.
- **Research, development and publications:** Initiate and manage research and development projects relating to mine waste management, with opportunities to prepare scientific papers and conference presentations.

About you

You will bring strong geological insight, confidence with computational tools and relevant post-graduate industry experience. We value competence, initiative and a passion for geoscience. You will hold at least a BSc in a geoscience-related discipline and have a minimum of three years' post-graduate technical experience, ideally within mining consultancy.

Key skills

- **Problem-solving:** A strong, structured approach to technical challenges, including the ability to define the work required while accounting for uncertainty and risk.
- **Independence:** The initiative and self-management needed to deliver high-quality projects within agreed timescales.
- **Communication:** Strong formal and informal communication skills, with the ability to explain complex scientific and computational concepts clearly to a range of stakeholders.
- **Technical writing:** Excellent report-writing and technical proposal development skills.

Required technical experience

- **PHREEQC:** Advanced expertise in PHREEQC, or equivalent geochemical modelling software, for aqueous speciation, mineral saturation and reaction-path modelling.
- **Python:** Proficiency in Python for data analysis, scientific computing, data manipulation using Pandas and NumPy, and workflow automation.

- **Mining geochemistry:** Practical experience of mine waste characterisation studies, laboratory test-work programme design and waste storage facility design.
- **International projects:** Experience of working on international projects and managing large, complex datasets.

Desirable experience and skills

- Familiarity with geological data tools such as ioGAS.
- Strong commercial awareness and an interest in contributing to business development.
- Confidence in contributing technical expertise to problem-solving discussions with clients and other stakeholders.
- **GoldSim:** Demonstrable experience of building dynamic systems-modelling architectures for mine water balance and environmental risk simulation.
- **Preparation of scientific papers** and conference presentations.

What we offer

- The opportunity to work with a small, highly motivated technical team in a relaxed and supportive environment.
- An attractive salary and benefits package, including Private health and dental insurance, discretionary bonus, company pension and an additional day of leave for your birthday.
- A healthy work–life balance, with flexible hours and the choice of hybrid or office-based working in North or South Wales, as well as potential opportunities to work from other UK locations or Sweden.
- Opportunities to collaborate on, co-author and present scientific publications in the UK and internationally.
- The chance to broaden your professional network and play a key role in a leading geoscience consultancy.
- Ongoing professional development and continuous learning.
- Regular team meetings and social events to help you build strong connections with colleagues.
- Payment of professional membership fees for an accredited association directly relevant to our work.

How to apply

To find out more or apply, please send your CV and a brief cover letter outlining your software and modelling experience to **info@memconsultants.co.uk**.