



POSITION DESCRIPTION

Position Title:	Applied Research Chemist
Cluster / Business Unit / Division	Commercial Products and Services (CPS)
Section or Unit:	Minerals
Classification:	Band 5
Job Family:	Research
Position Description Number:	PD-2206
Work Contract Type:	Professional
STEMM/NON-STEMM:	STEMM

POSITION PURPOSE

The purpose of the Applied Research Chemist is to support research and commercial activities relating to the processing of critical minerals such as rare earths and lithium along with uranium and other minerals containing radioactivity with an emphasis on leaching, solvent extraction, ion exchange and precipitation techniques.

ORGANISATIONAL ENVIRONMENT

ANSTO leverages great science to deliver big outcomes. We partner with scientists and engineers and apply new technologies to provide real-world benefits. Our work improves human health, saves lives, builds our industries and protects the environment. ANSTO is the home of Australia's most significant landmark and national infrastructure for research. Thousands of scientists from industry and academia benefit from gaining access to state-of-the-art instruments every year.

The Minerals business is a part of ANSTO's Commercial Products and Services cluster. We are a team of more than 60 consultants and technicians with expertise that covers metallurgy, chemistry, chemical engineering, mineralogy, geology and radiation safety. ANSTO's Minerals business provides practical solutions and innovative technology to deliver financial and environmental benefits to the mining and metallurgy industries.

Minerals has a Process Development and Research Group that undertakes commercial and research work that seeks to identify, investigate and develop technologies that will:

- increase the competitiveness and environmental sustainability of operations in the critical minerals (including rare earths and lithium), uranium and other metallurgical industries, including those affected by NORM (naturally occurring radioactive materials);
- underpin our commercial consulting services; and
- foster collaborative relationships to broaden the research portfolio to address more fundamental research questions in core areas.

ACCOUNTABILITIES & RESPONSIBILITIES

Key Accountabilities

- Apply a deep understanding of the chemical reactions and related theory involved in metallurgical processes in order to develop and improve metallurgical processes involved in treating ores and mineral concentrates in the areas of critical minerals (including lithium and rare earths) and uranium and other ores containing radioactivity.
- Organise and coordinate commercial process development test work and related experimental test work in a range of areas including, high temperature processes, leaching, solvent extraction, ion

exchange and precipitation techniques. This includes managing the project, liaising with the client and reporting to a senior consultant who has overall responsibility for the project with the client.

- Provide support to pilot plant projects including occasionally managing operational aspects of pilot plant project campaigns and the associated interpretation and assessment of results, including mass balances.
- Prepare commercial project proposals and test work plans in accordance with guidelines given by the senior consultant.
- Carrying out the experimental test work mentioned above.
- Collect, analyse and assess test work data, recognise the value of data and identify gaps that need to be filled in order to draw conclusions and develop process solutions. This involves applying sound judgement based on scientific knowledge/experience to identify good data and the ability to credibly question results.
- Write commercial reports related to the test work data.
- Contribute to journal and conference publications relating to research projects.
- Seize opportunities for innovation and creativity for solving complex scientific problems and provide competitive advantage to ANSTO Minerals projects.
- Assist in the preparation and presentation of papers for national and international fora.
- Keep abreast of the relevant literature; maintain knowledge of industry best practice and technological developments.
- Undertake additional duties as required and during period of leave of other staff.

Decision Making

- The position works within a framework of project requirements, legislation, policies, professional standards and resource parameters. Within this framework the position has some independence in determining how to achieve assigned objectives however will be constrained by the project requirements, resources, deliverables and timeframes.
- The ANSTO values, organisational corporate plan, business plan, operational excellence program, the Minerals business strategy and commercial and development project plans provide the context for the position.
- The position is fully accountable for the accuracy, integrity and quality of the content of work undertaken and advice provided and is required to ensure that decisions are based on sound evidence, but at times may be required to make effective judgements under pressure or in the absence of complete information or expert advice.
- Determine key work priorities within the context of agreed work plans and project plans and will consult with the line manager on complex, sensitive and major issues that have a significant impact on the project or team members.
- The levels of authority delegated to this position are those approved and issued by the Chief Executive Officer. All delegations will be in line with the ANSTO Delegation Manual AS-1682 (as amended or replaced).

Key Challenges

- Supporting multiple competing demands across a range of projects that are being delivered concurrently within defined budgets and tight timelines.
- Managing client's expectations and developing client relationships.
- Understand the chemical reactions in depth and be able to harness this understanding to both explain the results observed and identify opportunities to develop new processes to improve commercial processes.
- Continually challenge established ways of working in favour of more productive approaches.
- Keep up to date with changing technology and techniques and other industry/research developments.

KEY RELATIONSHIPS

The position reports to a principal consultant. The role does not have direct reports. On a project basis the role will involve supervision of professionals and technicians to set-up and operate laboratory testwork and occasionally provide supervision as part of pilot plant operations.

The position's key internal customers include members of the Minerals team.

This position has a strong interface with external clients and is expected to network in the mining industry.

Who	Purpose
Internal	
Manager	<ul style="list-style-type: none"> • Receive guidance and direction • Provide expert, authoritative and evidence based advice • Provide regular updates on key tasks, issues & priorities • Negotiate and report on progress of project outcomes consistent with project plans and goals • Recommend and gain endorsement for plans and goals and other initiatives • Escalate issues and propose solutions
Work area team members	<ul style="list-style-type: none"> • Support team members and work collaboratively to contribute to achieving outcomes • Provide expert advice and analysis on a full range of matters • Contribute to group decision making processes, planning and goals • Collaborate and share accountability • Identify, negotiate and resolve conflicts • Utilise individuals' skills and experience across a range of professional and technical areas of expertise to meet project requirements
External	
Customers and suppliers	<ul style="list-style-type: none"> • Communicate and provide advice and information to clients and suppliers and answer questions.

POSITION DIMENSIONS

Staff Data	
Reporting Line	Reports to the Principal Consultant
Direct Reports	Nil
Indirect Reports	<ul style="list-style-type: none"> • As campaign manager, occasionally manages a team of technical staff (typically 3 to 5) during pilot plant operations. • As project manager, oversees technicians to meet project requirements.

Financial Data (2021/2022)	
Revenue / Grants	Nil
Operating Budget	Nil
Staffing Budget	Nil
Capital Budget	Nil
Assets	Nil

Special / Physical Requirements	
Location:	Lucas Heights Working in different areas of designated site/campus as needed May be required to work for short periods of time outside ANSTO, possibly on remote sites.
Travel:	May be required to travel to other ANSTO and/or remote sites from time to time
Physical:	Office based physical requirements (sitting, standing, minimal manual handling, movement around office and site, extended hours working at computer) Industrial facility physical requirements (lifting, standing for long periods, operating machinery, equipment) Labour intensive physical requirements (sitting, standing, occasional manual handling up to 20 kg) Frequent movements (climbing, stooping, kneeling, crouching, crawling) Working in a loud environment Wearing personal protective equipment for the handling of hazardous and/or radioactive materials
Radiation areas:	May be required to work in radiation areas under tightly regulated conditions Perform duties in an area where radioactive materials are handled under tightly controlled safety conditions Perform duties with and in an area where hazardous chemicals or materials are handled under tightly controlled safety conditions
Hours:	Willingness to work extended and varied hours based on operational requirements After hours work will be required for short and infrequent periods Occasional work at ANSTO on a shift roster is required
Clearance requirements:	Satisfy ANSTO Security and Medical clearance requirements
Workplace Health & Safety	
Specific role/s as specified in <u>AP-2362</u> of the ANSTO WHS Management System	All Workers Other specialised roles identified within the guideline a position holder may be allocated to in the course of their duties

ORGANISATIONAL CHART

On file.

KNOWLEDGE, SKILLS AND EXPERIENCE

1. Degree in Chemical Engineering/ Applied Chemistry/ Chemistry or Metallurgy is essential and a PhD in this field is essential.
2. At least 3 years research experience in Chemical Engineering/Applied Chemistry/ Chemistry and/or Hydrometallurgy is essential.
3. Research experience in solid state high temperature reactions related to the processing of minerals for downstream hydrometallurgical refining processes is highly desirable.
4. Research experience in any field of hydrometallurgy such as leaching of minerals, solvent extraction, ion exchange, crystallisation, membrane separation or water treatment would be desirable.
5. High level verbal communication skills and ability to present to commercial clients and at technical conferences.

6. Good written communication skills, including previous publication in refereed journals and other publications.

VERIFICATION

Line Manager		Delegated Authority	
Name:	Chris Griffith	Name:	Jayne Senior
Title:	Principal Consultant	Title:	Director ANSTO Businesses
Signature:		Signature:	
Date:		Date:	