



POSITION DESCRIPTION

Position Title:	Deuteration Facility Biochemist
Cluster / Business Unit / Division	Nuclear Science and Technology
Section or Unit:	National Deuteration Facility
Classification:	Band 6
Job Family:	Research
Position Description Number:	PD-2653
Work Contract Type:	Professional
STEMM/NON-STEMM:	STEMM
STEMM Category:	Research

POSITION PURPOSE

The Deuteration Facility Biochemist contributes to the operation and advancement of the National Deuteration Facility by producing, purifying, and characterising stable-isotope-labelled molecules using synthetic-biology and chemical synthesis approaches. The role is also responsible for the day-to-day operation of NDF laboratories, ensuring laboratories remain compliant, well-maintained, and operational. Working across microbial engineering, biosynthetic pathway development, and chemical isotopic-exchange workflows, the position supports the supply of high-quality labelled molecules for ANSTO researchers and external users, while contributing to method development, scientific publications, and continuous improvement of NDF capabilities.

ORGANISATIONAL ENVIRONMENT

ANSTO is a leading global nuclear science and technology organisation delivering world class research and expertise to benefit Australia and support a more sustainable future. Using nuclear science, we improve health, support industries, provide expert advice to government on nuclear technologies and help develop Australia's nuclear workforce.

Nuclear Science & Technology (NST) incorporates ANSTO's research, innovation, landmark research infrastructure and associated platforms and capabilities. NST conducts research and development in relation to nuclear science and technology and connects people, transfers knowledge, and provides nuclear-based products and services for the benefit of Australia.

The National Deuteration Facility (NDF) is Australia's national facility for isotopic labelling of molecules with the stable, non-radioactive isotope deuterium using chemical or biological processes in order to enhance contrast, and reduce background when conducting structural studies using neutron scattering instrument operated by the Australian Centre for Neutron Scattering at the OPAL Reactor, or using spectroscopic techniques such as Nuclear Magnetic Resonance (NMR), Infra-Red (IR) or Mass Spectrometry (MS).

The NDF is a world leader in chemical deuteration and equal to the benchmark for Biodeuteration. It is the only facility of its kind in southern hemisphere and has an oversubscribed user program with greater than 100 users from 25 institutions per year benefitting from the NDF's capabilities. The NDF has significant international engagement with institutions in Europe, Asia and the U.S.A.

ACCOUNTABILITIES & RESPONSIBILITIES

Key Accountabilities

The key accountabilities for this position include:

- Contribute to the establishment of new synthetic biology protocols for microbial production of labelled lipids and other molecules, followed by chemical synthesis manipulation and isolation.
- Develop and screen microbial strains for efficient incorporation of stable isotopes.
- Develop small scale and scaled up expression and purification workflows for supply of labelled molecules.
- Purify labelled organic and biomolecules molecules using established chromatographic techniques.
- Day-to day responsibility for the running of the bio-deuteration/chem-deuteration laboratories including maintenance, calibration and other quality and safety functions (area supervisor of the laboratory).
- Implement and monitor safety protocols, conduct routine inspections, maintain laboratory documentation, and ensure adherence to quality systems.
- Operate, maintain, and troubleshoot assigned instruments; train other staff in their use.
- Contribute to grant applications supporting NDF research activities.
- Work closely with colleagues to integrate chemical and biological production workflows and support knowledge transfer.
- Contribute to journal and conference publications as appropriate.
- Undertake additional duties during periods of staff leave or peak activity

Decision Making

The position holder will be responsible for part or all of the laboratory work required to produce labelled molecules and in this context will:

- Make decisions on the design of biosynthesis for the production of stable isotope labelled molecules requested through the user program.
- Design (or contribute to design), discuss, and reach agreement with the NDF Director on approaches to the labelling and synthesis of specific molecules in NDF proposals.
- Determine key work priorities within the context of agreed weekly and monthly work plans and consult with the NDF Director on complex or major technical or methodological issues that have a significant impact on completion of NDF proposals for molecular labelling.
- Be fully accountable for the accuracy and quality of experimental results provided to the NDF-Director or the supervisors, and ensure that day to day decisions on laboratory work are based on sound evidence which at times may be require to make effective judgements under pressure or in the absence of complete information or expert advice.
- 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

The major challenges for this position include:

- Contributing to establishment of new capabilities at ANSTO (i.e. in synthetic biology of small organic molecules) in a teamwork setting.
- Converting technical breakthroughs into high value outcomes including high impact publications.
- Integrating biological and chemical workflows across the facility.
- Maintaining awareness of global developments to ensure NDF remains world leading.
- Timely achievement of goals in a multi-tasking environment requiring initiative and self-motivation
- Learning new techniques in synthetic chemistry or separation/characterisation of organic molecules.

KEY RELATIONSHIPS

Who	Purpose
Internal	
NDF Director	• Receive guidance and direction • Recommend and gain endorsement for plans and goals and other initiatives. • Report on progress of NDF deuteration proposals • Provide expert, authoritative and evidence based information and advice on safety and quality aspects of the NDF's operations.
Deuteration Team members	• Provide expert advice and analysis on a full range of matters • Contribute to group decision making processes, planning and goals • Collaborate and share accountability • Negotiate and resolve conflicts
ANSTO Scientists & facility users	• Provision of deuterated molecules for research • Advice on bio-synthesis and deuteration • Supervision and training for the use of NDF instrument facilities
External	
Facility users and collaborators from university, public and commercial R&D sector and suppliers.	• Build and maintain relationships and stimulate interest in deuteration and in the research community. • Provide advice and analysis. • Collaborate and contribute to research projects. • Understand user requirements and desired outcomes. • Provide training, guidance & supervision while utilising facilities, ensure compliance with safety, quality and applicable legislation and regulations. • Collaborate to deliver client focused results and provide scientific expertise. • Purchase order of lab reagents and consumables and negotiations with suppliers

POSITION DIMENSIONS

Staff Data	
Reporting Line	Reports to the NDF-Director
Direct Reports	Nil
Indirect Reports	Nil
Financial Data (2026/2027)	
Revenue / Grants	N/A
Operating Budget	N/A
Staffing Budget	N/A
Capital Budget	N/A
Assets	N/A
Special / Physical Requirements	
Location:	Lucas Heights Working in different areas of designated site/campus as needed
Travel:	May be required travel to ANSTO sites from time to time Frequent travel both internationally and nationally

Physical:	Office based physical requirements (sitting, standing, minimal manual handling, movement around office and site, extended hours working at computer) Standing for long periods doing laboratory work Public speaking 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
Hours:	Willingness to work extended and varied hours based on operational requirements
Clearance requirements:	Satisfy ANSTO Security and Medical clearance requirements Obtain and maintain appropriate federal government clearance

Workplace Health & Safety

Specific role/s as specified in AP- 2362 of the ANSTO WHS Management System

ORGANISATIONAL CHART

Refer to published Organisational Chart

KNOWLEDGE, SKILLS AND EXPERIENCE

1. PhD (or Honours with equivalent lab research experience) in Biochemistry, Synthetic Biology, Organic Chemistry, or a related field.
2. Practical laboratory experience in synthesis, separation and characterisation of small molecules.
3. Demonstrated experience with heterologous expression systems (yeast, microbial systems, or cell free platforms).
4. Ability and willingness to learn deuterium – hydrogen exchange reactions.
5. Demonstrated record of scientific communication, including publications and conference presentations.
6. Ability to keep accurate records and a meticulous approach to execution of research in the laboratory.
7. Proficiency in a Windows computer environment and Microsoft Office.
8. Strong customer focus
9. Ability and willingness to work in a team environment

VERIFICATION

This section verifies that the line manager and appropriate senior manager/executive confirm that this is a true and accurate reflection of the position.

Line Manager		Delegated Authority	
Name:	Tamim Darwish	Name:	Andrew Peele
Title:	Director, National Deuteration Facility	Title:	Group Executive, Nuclear Science and Technology
Signature:		Signature:	
Date:		Date:	