Australian Government

ANSTO
Science. Ingenuity. Sustainability.

POSITION DESCRIPTION

Position Title:	Principal Plant Engineer
Cluster / Business Unit / Division	Clayton Campus
Section or Unit:	Mechanical Engineering
Classification:	Band 7
Job Family:	Engineering
Position Description Number:	PD-2409
Work Contract Type:	Technical
STEMM/NON-STEMM:	STEMM

POSITION PURPOSE

The Principal Plant Engineer is responsible for providing technical leadership, subject matter expertise and consultancy services to internal stakeholders, other engineering team members and management in the context of Technical Plant Systems. Technical Plant Systems are defined as systems which provide critical utility to the accelerator and beamlines where their performance and reliability have a direct impact on the operations of the scientific infrastructure.

The Principal Plant Engineer is to maintain specialist expertise in low conductivity water chemistry and plant, have the ability to define and manage system performance and all associated plant and hardware. The Principal Plant Engineer is to develop future upgrade strategies to ensure the Technical Systems stay ahead of the needs of the accelerator and beamlines as they are continually upgrade or new beamlines are constructed. The Principal Plant Engineer is to maintain a thorough understanding of how the performance of the Technical Plant Systems influences accelerator and beamline performance and have the ability to communicate effectively and accurately with stakeholders who rely on these systems.

ORGANISATIONAL ENVIRONMENT

ANSTO is the national organisation for nuclear science and technology. We focus on undertaking leading edge research, delivering innovative scientific services and providing specialised advice to government, industry, academia and other research organisations.

The Australian Synchrotron (AS) is a division within the Australian Nuclear Science and Technology Organisation (ANSTO) and one of the nation's premier science facilities that provides a vibrant focal point for researchers from Australia, NZ and further afield. The facility provides world-leading technical capability that delivers better and faster experimental techniques that enhance current fundamental and applied research. The facility promotes international collaboration to enable leading-edge R&D that will greatly benefit Australia and our regional neighbours.

The Engineering Group at the Synchrotron provides comprehensive engineering, technical, safety, reliability, design, build and maintenance services, delivering engineering solutions to the Beamline Science Group including supporting the delivery of major capital programs and engineering upgrades. The Engineering Group comprises of the Mechanical Engineering Team, Mechanical Technicians Team, Electrical Engineering Team and the Facilities Team including Plant maintenance.

ACCOUNTABILITIES & RESPONSIBILITIES

Key Accountabilities

- Provide leadership and subject matter expertise to the Technical Plant and Utility Systems which provide critical functionality to the accelerator and beamline systems.
  Technical Plant includes:

- LCW Plant
- Chilled Water
- Hutch Environment Control
- Experimental Gas Distribution
- Experimental Gas Extraction
- Building Management Systems (machine critical)
- Compressed air
- Refrigeration plant (chillers)

- Define and deliver long term strategies to develop the technical plant systems ensuring demands and performance requirements of the accelerator and beamlines are met as new beamlines enter operation and major facility upgrades are delivered.
- Take on system ownership responsibilities of Technical Plant Systems requiring the development of asset management strategies and maintenance plans including lifecycle planning extending to end of facility life.
- Be the subject matter expert in water chemistry for the facility and the requirements it places on the performance and design of LCW cooling systems.
- Develop, deliver and support advanced engineering solutions which are highly integrated into accelerator and beamline systems with particular attention to design and performance requirements of sensitive scientific instruments in a high radiation environment.
- Develop and monitor performance KPI's of technical plant systems. Use these KPI's to manage day to day end user performance and improve the plant as part of an asset management strategy.
- Manage equipment maintenance and installation of new equipment within downtime constraints and budgets.
- Drawing on the long term strategies and asset management plan forecast the budget required to deliver upgrades, major projects and spares in the future which enhance performance an increase or maintain reliability of the Technical Plant.
- Ensure the safety of a technical plant systems. This may include verification by calculation, assessing the adherence to Australian Standards and other legal/regulatory requirements, developing safe work procedures, education and training of staff and appropriate record keeping.
- Defining, implementing and education of facility wide standard technologies. Ensuring adherence to standards when possible and providing expert advice on the design or implementation of non standard equipment when required.
- Supervise on-site contractors engaged to provided work on the technical systems and ensure all work is carried out in a safe manner according to ANSTO contractor management procedures.
- Develop and maintain mutually beneficial collaborative relationships with subject matter experts, peers in industry and other synchrotron facilities in the interest of keeping informed of latest advancements and industry trends, applying this knowledge to improve the facility, transferring knowledge and ensuring the AS remains competitive internationally.
- Project management including planning, delegation and execution of large scale projects with multi-disciplined engineering aspects to ensure timely delivery
- Mentoring and coaching of junior members of the team and in the context of a facility wide initiatives in the interest of contributing to their professional and technical skills development.

Key Challenges

- Make complex engineering decisions which may have high impact on the performance of the accelerator and beamlines.

- Make complex engineering decisions which may have high impact on the operational efficiency and costs associated with operating the plant.
- Ensure the Technical Plant Systems meets the many and widely varied performance requirements of accelerator and beamlines systems.
- Negotiation and communicate skills with many stakeholders who may present technically difficult requirements to be met where meeting all requirements sometimes may not be possible.

KEY RELATIONSHIPS

Who	Purpose
Internal	
Department Head & Line Manager	• Regularly, or as required to discuss 'beyond the norm' needs to complete a project or task, priorities where higher level input is required and to provide advice on technical feasibility/practicality on challenges relevant to their areas of responsibility.
Members of the team and other engineering groups	• As required to provide expert technical advice and guidance depending on the scope of work carried out
Beamline scientists	• Weekly or as often as required to provide expert technical advice; discussions project progress, challenges and requirements. Clarification of performance requirements. Identify possible solutions; communication of predicted technical challenges before they happen; provide suggestions, solutions and troubleshoot as required
External	
Experts/colleagues at other facilities	• As required depending on requirements to maintain knowledge of technical developments at other facilities which may be relevant and transferrable. Seek and provide advice as required
Specialist contractors/suppliers	• Monthly, or as required to seek specialist services or advice to purchase specialist equipment

POSITION DIMENSIONS

Staff Data	
Reporting Line	Plant Engineer reports to the Manager, Mechanical Engineering
Direct Reports	This role has no direct reports but will supervise and direct engineers and as required
Indirect Reports	The Plant Engineer may be assigned a delivery / project team or an individual to deliver a scope of work and will be required to monitor progress, quality of work and take ultimate responsibility for the outcomes. Leadership responsibilities also extends to management

	and responsibility for contractors, interns, work experience students and their work.

Special / Physical Requirements

Location:	Clayton Working in different areas of designated site/campus as needed
Travel:	May be required travel to ANSTO sites from time to time May be required internationally
Physical:	Office based physical requirements (sitting, standing, minimal manual handling, movement around office and site, extended hours working at computer) Labour intensive physical requirements (sitting, standing, frequent manual handling up to 20kg) Working in a loud environment Public speaking Industrial facility physical requirements (lifting, standing for long periods, operating machinery, equipment and manipulators) 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 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 may be required for short and infrequent periods
Clearance requirements:	Satisfy ANSTO Security and Medical clearance requirements Obtain and maintain appropriate federal government clearance

Workplace Health and Safety

Specific role/s as specified in AP-2362 of the ANSTO WHS Management System	All Workers
	Officer (definitions found in appendix A of AP-2362) Managers / Leaders / Supervisors Other specialised roles identified within the guideline a position holder may be allocated to in the course of their duties

ORGANISATIONAL CHART

Ref to published Organisation Chart

KNOWLEDGE, SKILLS AND EXPERIENCE

A Degree level or higher qualification in an appropriate Engineering discipline

Essential

1. Significant and demonstrated relevant industry experience in a technical lead capacity, at least 5 years of which would have involved working at the level of recognized expert
2. Demonstrated experience in a technical environment delivering major upgrades while in an operating environment
3. Advanced skills and knowledge in areas such as water chemistry, systems engineering and plant management.

4. Significant experience in design, specification, tendering, testing and commissioning of plant systems.
5. Significant experience in planning and prioritising maintenance activities and shutdowns.
6. Project management skills with proven ability and experience to lead sizable development projects.
7. The ability to effectively communicate with, influence and collaborate with people at all levels including various technical groups, experts in their field and contractors.
8. The ability to work autonomously

Desirable

9. Experience in a science environment or expert knowledge and skill unique to partial accelerators and X ray environments
10. Formal Qualifications in reliability management, systems engineering or project \ Management qualification.

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:	Chris Ampt	Name:	Brad Mountford
Title:	Manager, Mechanical Engineering	Title:	Head of Engineering, NST Synchrotron
Signature:		Signature:	
Date:		Date:	

Appendix 1

ANSTO Job Families
Accounting & Finance
Administration
Communications & Marketing
Compliance & Regulation
Engineering and Technical
Human Resources
ICT & Digital Solutions
Information & Knowledge Management
Legal
Manufacturing
Monitoring & Audit
Operations
Organisational Leadership
Project & Program
Research
Science
Security & Intelligence
Senior Executive
Service Delivery
Strategic Policy
Trades & Labour