Position Description

Water Resources Engineer – Water Quality Modelling

Business Unit: Water & Catchment Protection

Reporting to: Water Quality Modelling Manager

Position Purpose

To develop and apply advanced analytical, computational and experimental methods to study water in natural and engineered systems, for planning and operations, and to provide related expert engineering support and advice; and put safety first.

Key Accountabilities

1. **Safety:** ensure all activities are undertaken with the safety of our people as the number one priority and always role model safe behaviour.
2. **Values:** behave and make decisions in accordance with the WaterNSW Values at all times.
3. Provide technical input relating to hydrologic, hydraulic components and water quality interactions of multi-disciplinary projects in a team environment to assist in meeting regulatory and business requirements.
4. Provide project management support to deliver key projects for the business and ensure that best practice project management is applied throughout the life of the project.
5. Undertake the development, maintenance and application of a strategic suite of 'water' models for water quality and quantity, including for example catchment and stream models, system yields, network capacity and both actual and theoretical water supply system planning and operational models.
6. Undertake a broad range of water resource engineering activities for internal and external customers, including for planning, water delivery, flood and emergency operations and capital projects, and to ensure hydrologic factors and water quality are well understood and managed with acceptable risk
7. Ensure models and reliable forecasts are available, and that support is provided for operations during events and incidents.
8. Ensure models are accessible and provide reliable advice for our customers to protect our catchment health, provide clean water and protect our ecosystems.

Key Challenges

- Turning abstract data and information into meaningful knowledge to facilitate the better understanding of the complexities of catchments, storages and transfer systems.
- Keeping informed of industry standards and technological developments to provide the best accurate value for money solutions and advice.
- Ability to work in a virtual rapidly changing environment, managing change throughout the business

Significant Internal Relationships

Stakeholder	Purpose of Relationship
System Operations Team	• Understand needs and requirements • Collaboration
Catchment Programs	• Understand needs and requirements • Collaboration
ICT Team	• Ensuring solutions align with corporate standards
Water Modelling Team	• Collaborate with the team • Ensure solutions align and common standard systems are developed
Water Information Solutions	• Understand needs and requirements • Collaboration
Water Quality	• Understand needs and requirements • Collaboration • Advice and support on water quality modelling

Significant External Relationships

Stakeholder	Purpose of Relationship

Sydney Water	• Understand needs and requirements for water quality information • Collaboration with the Sydney Water Hawkesbury Nepean Hydrodynamics modelling team
Local councils with the catchment	• Understand needs and requirements for water quality information • Collaborate and connect for data sharing

Delegations, Financial Accountabilities & Freedom to Act

- As defined in the WaterNSW Financial Delegations as varied from time to time.

WaterNSW Leadership & Performance Competencies

People	**Level**	
Communicating with Influence	C	• Generates interest in complex ideas and concepts • Builds support by taking the time to educate and consult others • Uses storytelling effectively to meaningfully convey key messages
Customer	**Level**	
Collaboration & Engagement with Customers and Stakeholders	B	• Builds and maintains relationships with individuals from other work groups to accomplish shared goals • Adapts approach to meet the needs of a broad range of customers and stakeholders
Partnering & Advice	B	• Engages in a productive dialogue with the customer to consultatively identify a solution • Provides credible advice for customers based on an understanding of the underlying issue • Knows when to draw on additional resources to provide appropriate support and advice for customers
Business	**Level**	

Analysis & Problem Solving	C	• Takes a broad view when analysing complex and ambiguous situations • Recognises patterns and draws linkages between data and/or situations • Develops long term solutions that address the root cause of problems and prevent recurrences • Selects and uses problem solving tools appropriate to the problem and the context • Evaluates the effectiveness of implemented solutions
Continuous Improvement	B	• Analyses current processes and practices to identify opportunities for improvement • Identifies patterns in data and information and implements improvements based on this analysis • Has knowledge of and able to apply appropriate continuous improvement tools to achieve the best outcome • Undertakes improvement projects within own team or business area to improve outcomes by utilising innovative thinking
Planning & Delivering Results	B	• Manages expectations and accepts accountability for deadlines, budget and outcomes • Delivers consistently to plans and focuses on the achievement of results despite obstacles • Implements quality assurance practices to ensure projects and activities are delivered to required standards. • Initiates action without prompting

Mandatory Candidate Requirements

Qualifications:

- Bachelor's degree or higher in Civil (or Environmental) Engineering
- Current NSW Drivers Licence

Mandatory Experience:

- Demonstrated experience at a senior level in hydrologic/hydraulic data analysis, modelling and reporting.
- Experience relating to the management and delivery of projects that investigate large catchment scale water resources for both quantity and quality.
- A registered (or ability to be registered) as a Certified Engineer in water resources engineering.

Knowledge

- Evidence of understanding of water quality and quantity issues confronting Government and WaterNSW.
- Understanding and experience in the build-up and wash-off of contaminants in the catchments, including appropriate certifications (e.g. Certified Professional in Erosion and Sediment Control (CPESC)).
- Knowledge and experience in the application of technology (SCADA or modelling systems) for water data or in the development and application of models for catchment, streams and water supply systems.

Favourable Candidate Requirements

- Post-graduate education / research in Water Resources, Environmental Science, Data Analytics or Freshwater aquatic sciences
- Post-graduation experience in coding using Python, R or equivalent.
- 3D Hydrodynamics and water quality modelling experience
- Knowledge and experience in the use of large data sets for modelling, such as SCADA, HYDSTRA and real-time online data for both quality and quantity

Pre-Employment Checks Required

- Identification
- Qualifications
- Drivers Licence
- Pre-employment Medical
- Police Check