



## Role Description

<b>Title</b>	Electrical and Water Systems Engineer	<b>Incumbent</b>	
<b>Manager's Title</b>	Engineering Supervisor	<b>Date of Last Review</b>	February 2026
<b>Team</b>	Engineering	<b>Location</b>	Scott Base
<b>Work Environment</b>	This role will require the incumbent to travel to Antarctica for an extended period which requires a medical clearance.		

### Organisational Context

Antarctica New Zealand is a Crown Entity established on 1 July 1996 under the New Zealand Antarctic Institute Act to develop, manage and execute New Zealand's activities in respect of Antarctica and the Southern Ocean.

Our key activities include facilitating scientific research in Antarctica, protection of the environment and raising public awareness of the global significance of the continent and surrounding Southern Ocean.

Antarctica New Zealand operates in a hazardous environment. The management of safety and risk are critical to achieving the New Zealand Antarctic programme objectives. The highest standards of environmental care and responsibility are required in all tasks.

The Engineering team are responsible for ensuring that Scott Base and its assets are well maintained and operated to support New Zealand's ongoing activities in Antarctica.

### Our Goal for New Zealanders

New Zealand continues to play an influential role in the kaitiakitanga (guardianship) of Antarctica and the Southern Ocean as a natural reserve devoted to peace and science.

### Role Purpose

This role is responsible for safely operating and maintaining the Scott Base power generation, distribution and electrical control systems in accordance with New Zealand electrical standards and regulations. This role also ensures the safe and continuous operation of potable and wastewater systems.

### Work of Role

- Perform preventative and corrective maintenance on electrical aspects of Scott Base buildings, plant and equipment, including:
  - Heating, ventilation and refrigeration systems
  - Diesel generators
  - SCADA (Supervisory Control and Data Acquisition) and BMS (Building Management System)
  - Water Production and Wastewater Treatment Plant Control Systems
  - Fuel control systems



- Fire protection systems (VESDAS, fire pumps, fire panels)
- Portable equipment for field use - including generators and huts with associated power outlets and lighting.
- Lead all onsite works (electrical and mechanical) associated with preventative and corrective maintenance on the Ross Island Wind Energy System (including wind turbines and transformers, Cables and BESS - Battery Energy Storage System).
- Provide assistance to the Water Engineer by:
  - Completing daily preventative and corrective routine potable water production and wastewater treatment tasks.
  - Ensuring safe, continuous operation of potable and wastewater systems to maintain consistent service levels throughout the season.
  - Undertaking system monitoring, and operational data recording for the RO plant, potable water reticulation, and the wastewater treatment plant.
  - Actively assisting with daily operational duties such as dewatering, filter changes, and other routine process tasks.
  - Assisting with water sampling, basic field testing, instrument preparation and calibration. Follow all hygiene, contamination-control, and safety protocols associated with potable and wastewater systems.
  - Support planning and prioritisation of seasonal water system tasks, including start-up, winterisation, and peak-demand periods.
  - Assisting with inventory checks, procurement; chemical management and updating SOPs.
- Utilise asset management software to plan, execute and record all preventative and corrective maintenance or improvement work undertaken.
- Act as Duty Engineer on a rostered basis.
- Complete all electrical assurance documentation for electrical works (Certificate of Compliance and Electrical Safety Certificate) as per the Electrical Regulations.
- Carry out and record periodic inspections and testing including RCD checks and appliance testing.
- Undertake instrument testing and calibration where required including but not limited to VOC detectors, LPG detectors, CO<sub>2</sub> detectors, ozone sensors.
- Assists other team members and contributes to the overall base community.
- Support visiting contractors with asset maintenance and servicing work.
- Assist visiting personnel with equipment set up, operation, diagnostics and repair.
- Rostered duties on the Scott Base Fire Crew and other base tasks as required.
- Fulfil accountabilities as documented in the Health, Safety and Environmental Management Systems including proactive management of risks and resources to prevent harm.
- Fulfil accountabilities as described in the Information and Records Management Policy for creating and centrally storing accurate and complete operational records.
- Any other tasks assigned by the Engineering Supervisor or the Scott Base Leadership Team.

## Key Challenges

- Maintenance of electrical and power generation facilities which operate in a harsh environment.
- Participation in an on-call Duty Engineer roster and being able to respond to plant alarms/emerging issues at any time.
- Operating in a two-person team during the summer months to prioritise, divide and complete work utilising individual strengths.
- Ability to maintain a positive outlook while under pressure and responding to rapidly changing priorities.



- Maintaining motivation and work quality (including repetitive tasks) 6 days a week for up to 6 months. This may include proactively seeking work during quieter periods.
- Resilient to living in a small communal environment for up to 13 months (e.g. shared bunk rooms, communal bathrooms etc).
- The location and role may place pressure on the physical and mental well-being of the incumbent (e.g. at times long work hours, 24-hour daylight/darkness); the incumbent's family and other close relationships.

### Key Functional Relationships

<b>Internal</b>	<ul style="list-style-type: none"> <li>• Engineering Supervisor</li> <li>• Scott Base Leadership Team</li> <li>• Engineering Facilities Planner</li> <li>• Asset Management Engineers</li> <li>• Operations Solutions Manager</li> <li>• Operations Delivery Manager</li> <li>• Water Engineer</li> <li>• Scott Base staff</li> </ul>
<b>External</b>	<ul style="list-style-type: none"> <li>• Event personnel visiting Scott Base</li> <li>• United States Antarctic Programme personnel</li> </ul>

### Minimum Capability Necessary to Work to Role

Capability Area	Description
<b>Knowledge, Skills and Experience</b>	<ul style="list-style-type: none"> <li>• Current New Zealand Electrical Practising Licence</li> <li>• At least 5 years post-qualification experience</li> <li>• Proficiency in computer use, particularly for record keeping.</li> <li>• Understanding of and commitment to tikanga and Te Tiriti o Waitangi (Treaty of Waitangi) principles</li> <li>• Preferably experience in:             <ul style="list-style-type: none"> <li>• Power generation, particularly wind turbines and diesel generators</li> <li>• Electrical fault-finding</li> <li>• Testing and tagging and electrical testing and certification</li> <li>• Industrial gas detection equipment.</li> <li>• Distributed Control Systems, or Building Management Systems</li> <li>• Commercial wiring</li> <li>• Basic understanding of potable water production processes, including RO plant operation, monitoring, and routine maintenance.</li> <li>• Knowledge of wastewater treatment systems, including daily checks, process control, and hygiene/contamination control protocols.</li> <li>• Understanding of process control systems associated with water and wastewater treatment, including SCADA/BMS interfaces.</li> </ul> </li> </ul>



<b>Judgement, Temperament and Influence</b>	<ul style="list-style-type: none"><li>• Able to collaborate effectively across disciplines, particularly when supporting water and wastewater operations.</li><li>• Demonstrates flexibility in undertaking operational tasks outside core electrical duties when required.</li><li>• Comfortable performing routine, process-driven tasks that are essential for maintaining water quality, system compliance, and safe operation.</li><li>• Demonstrates the personal qualities required to fit in socially and professionally with a diverse range of people in a potentially stressful environment.</li><li>• Able to work without direct supervision</li><li>• Ability to positively accept/provide feedback</li><li>• Excellent communication skills</li></ul>
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### Antarctica New Zealand Values

To honour our obligation to Antarctica:

- **We are proactive and passionate about what we do**  
E ngākau whiwhita ana, e ngākaunui ana hoki tātou ki ā tātou mahi katoa
- **We take responsibility for each other and the environment**  
Nō tatou te haepapa kite tiakii a tatou anōme te taiaohoki
- **We work together to achieve success**  
Ka mahi tahi tātou kia angitu ai
- **We always act with integrity**  
He ngākau pono ō tātou ahakoa te aha
- **We pursue excellence in everything we do**  
Ka whāia e tātou te iti kahurangi i ā tātou mahi katoa

### Role Authorisations

I confirm that this Role Description accurately describes the work of the Base Electrician:

\_\_\_\_\_  
Operations Delivery Manager

\_\_\_\_\_  
Date

I accept this Role Description accurately describes the work of the role for which I am accountable:

\_\_\_\_\_  
Electrical and Water Systems Engineer

\_\_\_\_\_  
Date