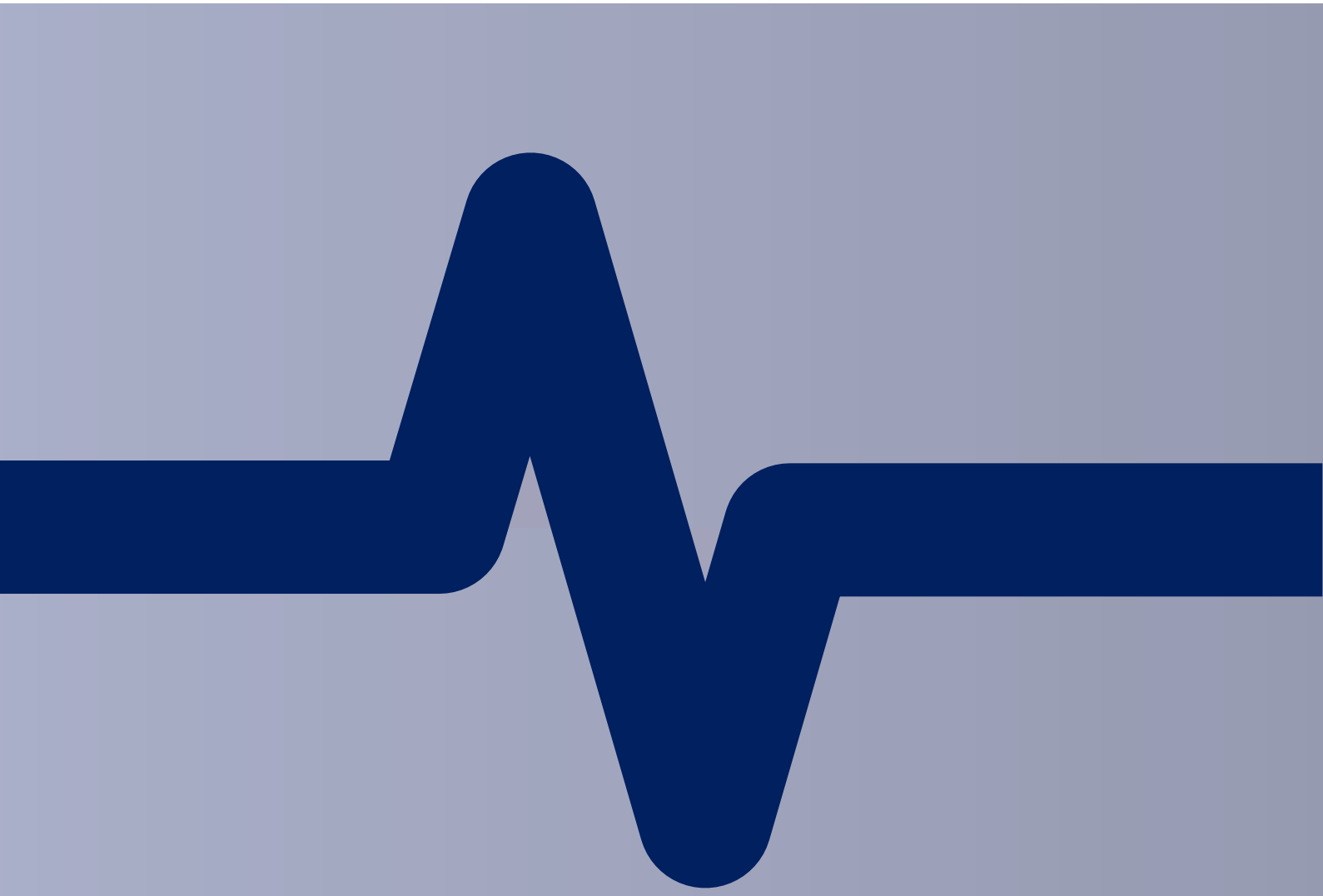
Work Control Procedures

STAY LIVE
ELECTRICITY GENERATION
HEALTH AND SAFETY GROUP

The Operational Log February 2026

A complete record of all operating actions and events, time stamped as they occur.



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Contents

Preparation of Work Control Procedures

StayLive Work Control Procedures are prepared by a consensus process involving representatives nominated by major generating companies in NZ. These procedures may be derived from existing industry procedures, from established international procedures and practices or may be developed by the StayLive Work Control Procedures Working Group.

The following companies are represented on the WCP Group:

Contact Energy Ltd

Genesis Energy Ltd

Meridian Energy Ltd

Mercury NZ Limited

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Pioneer Energy Ltd

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Disclaimer

This document has been prepared by a group of representatives of the electricity industry for the purpose of providing principles on safety and other practices for use by the generation sectors of that industry. It sets out standards considered to be appropriate for the electricity industry; in some instances, further procedures will need to be developed in order to implement those standards. Although this document is recommended by industry representatives, it is not legally binding; as such, the industry representatives involved in its development can accept no liability or responsibility for any injury, loss, damage, or any other claims caused by or resulting from any inaccuracy in or incompleteness of the document.

1. INTRODUCTION

PURPOSE

StayLive adopts the Safety Manual – Electricity Industry (SM–EI) rules as its essential safety requirements for the control of hazards.

The Operational Log supports the Work Control Procedures.

This document outlines the requirements and responsibilities for recording operating actions, events, and associated information in the operational log at generation facilities.

OVERALL PHILOSOPHY

Achieving safe work practices on our worksites is conditional upon three key elements:

1. Personnel shall fully understand their individual roles and responsibilities and also an understanding of the roles and responsibilities of others.
2. Effective planning will drive efficient and safe work execution.
3. Clear, concise, and effective communication between all parties is essential to ensure the correct application of these work control procedures and the safe completion of site activities.

SCOPE AND APPLICATION

These Work Control processes are best practice for use on generating plant and facilities.

These Work Control processes take precedence wherever there is an optional requirement or ambiguity with the SM–EI rules and procedures.

In this document, the following terms apply:

- “shall” indicates a requirement (mandatory),
- “should” indicates a recommendation,
- “may” indicates a permission,
- “can” indicates a capability.

STANDARD OPERATING PROCEDURES

If the implementation of these procedures results in sub-optimal or impractical outcomes, then Standard Operating Procedures (SOP) may be developed which provide an equivalent or greater standard of control of the work environment.

THE OPERATIONAL LOG

The operational log is the official record of operational activities. It includes:

- Automatically captured data e.g., control system logs, alarms, sequence of events records, voice recordings
- Manually recorded entries created by operational personnel

This guidance applies to the management of manually recorded information.

THE OPERATIONAL LOG PRINCIPLES

- The log provides an accurate chronological record of operational actions and events, integrating both automated and manual information.
- Logs are controlled by the operator in charge.
- Original paper records must remain at the station, facility or control centre.
- Log entries must be traceable to an event or action, and the person making the entry
- Operating terms and abbreviations must follow industry practise (e.g., WCP glossary

2. OPERATIONAL LOG REQUIREMENTS & RESPONSIBILITIES

Effective logging supports safe, reliable, compliant, and accountable operation.

DIGITAL LOGS

Asset owners shall treat digital logging systems as critical infrastructure and ensure they are maintained accordingly.

Where manual entries are logged in a digital system:

- Systems should conform to this document's requirements
- Entries shall be secure, traceable, and retained for a minimum of two years

MANUAL ENTRIES

- Provide factual records of actions, observations, and decisions
- Add important operational context where not captured by automated systems
- Shall be clear, accurate, and recorded at the time of occurrence

PAPER LOGS

Paper logs shall be used when digital logs are unavailable.

Requirements:

- Entries completed in pen
- Correct time recorded
- Out of sequence entries shall be marked with an asterisk in the left-hand side of the time column
- Errors crossed out with a single line, initialled, and re-written
- Entries made by someone other than the duty operator shall be signed by the author
- End of shift: operator prints name, signs, and rules off

See section 5 Operational Log Example

3. SCOPE OF OPERATIONAL RECORDS

The operational log shall record significant operational information, including:

PLANT STATUS AND ACTIVITIES

- Significant equipment state changes
- Status of inspections and testing
- Operating orders actioned
- Transfer of Operational Control
- Active Permits, Work Authorities, and Assurances
- Operational restrictions and key management information

EVENTS AND ABNORMAL CONDITIONS

- Out-of-limits / out-of-specification conditions
- Actions taken for alarm responses
- Abnormalities or unexpected plant and equipment behaviour
- Health and Safety or Process Safety-related events
- Environmental events (e.g., earthquakes, high river levels, consent breaches)

COMMUNICATIONS AND COORDINATION

- Significant discussions with:
  – Internal Management
  – System Operator
  – Trading
  – Maintenance or technical staff
- Co-ordination of electrical switching activities e.g. with third parties
- Calls to external agencies (e.g., emergency services)
- Calls received (e.g. members of the public, stakeholders etc.)

4. SHIFT HANDOVER REQUIREMENT

Shift handover supports operational continuity, clarity, and safety. The following also applies when a station is to be left unattended.

Outgoing Operator Shall:

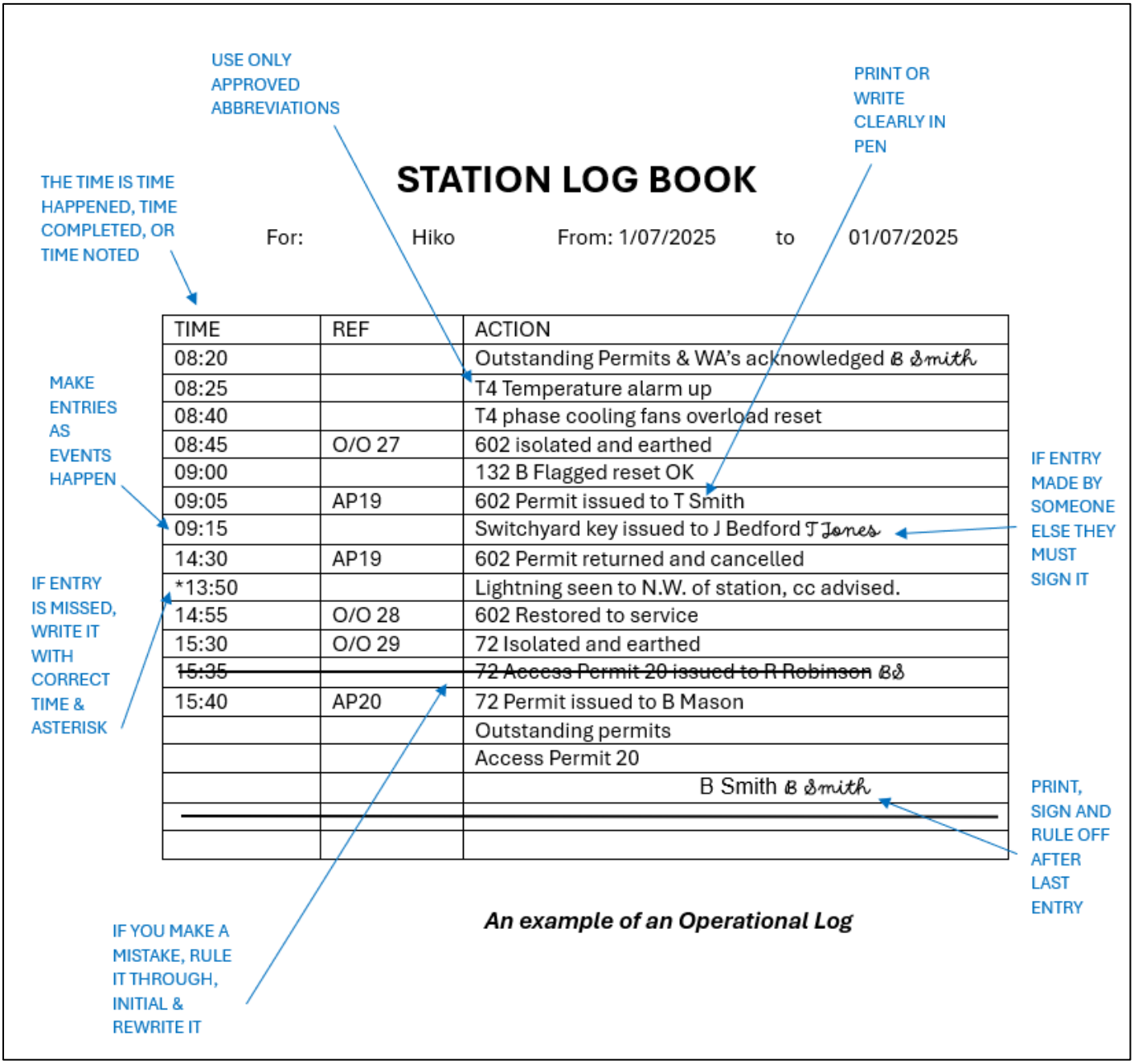
- Summarise current operational status
- Record significant changes during their shift
- Identify:
    - Outstanding Permits and Work Authorities
    - Other significant activities

Incoming Operator Shall:

- Review all recorded entries
- Acknowledge:
    - Operational status
    - Significant plant changes that occurred in the previous shift
    - Outstanding permits, work authorities or activities

A separate handover document may be used if site procedures require it.

5. LOG BOOK EXAMPLE



STATION LOG BOOK

For: Hiko From: 1/07/2025 to 01/07/2025

TIME	REF	ACTION
08:20		Outstanding Permits & WA's acknowledged B Smith
08:25		T4 Temperature alarm up
08:40		T4 phase cooling fans overload reset
08:45	O/O 27	602 isolated and earthed
09:00		132 B Flagged reset OK
09:05	AP19	602 Permit issued to T Smith
09:15		Switchyard key issued to J Bedford T Jones
14:30	AP19	602 Permit returned and cancelled
*13:50		Lightning seen to N.W. of station, cc advised.
14:55	O/O 28	602 Restored to service
15:30	O/O 29	72 Isolated and earthed
~~15:35~~		~~72 Access Permit 20 issued to R Robinson BS~~
15:40	AP20	72 Permit issued to B Mason
		Outstanding permits
		Access Permit 20
		B Smith B Smith

An example of an Operational Log

WCP GLOSSARY

Terms	Definition
Access Permit [AP]	A Works Management System used to present out of service equipment in an agreed and defined state for work, using issuer applied safety measures, where the work does not include the introduction of primary energy sources, test voltages or potentially lethal hazards
Actioner	The competent person physically carrying out actions defined in the operating order or isolation instruction.
Allocate	To pass from one operating employee to another the instructions for carrying out defined operating actions.
Alteration	An agreed addition or deletion of an issuer applied safety measure on an issued Access Permit. Not allowed on a Test Permit.
Approved	Having an asset owner's or employer's endorsement for a specified function or purpose.
Asset Owner [AO]	A participant in the electricity supply industry who owns plant or equipment used for generating or conveying electricity ultimately responsible for safety at site.
Assurance	The Assurance is an administrative system between different asset owners used to confirm the agreed and defined state, of equipment not under the control of the Issuer, necessary for Access or Test Permits.
But Note That:	Field on a permit where the Issuer indicates any remaining hazards.
Checker	The second competent person that verifies the draft operating order or isolation instruction sequence and content achieves the objective.
Competent	Has the necessary ability, knowledge, and skill to carry out work safely and to the quality and standard required.
Compiler	The competent person developing a draft operating order or isolation instruction.
Conductor	Material used for the conveyance of electricity.
Daily Meetings	A meeting to communicate the key aspects for the intended work, specifically for all work party supervisors to meet with the asset owner to discuss and document the nature and location of each party's work and the hazards that may be created through their work.
De-energised	Not connected to or containing a source of energy, e.g., electrical, steam, compressed air, hydraulic.
Delegate	To assign a task or responsibility to another competent person. E.g. a Permit Recipient may delegate the application and removal of approved RASM's to an AP Supervisor
Departing Recipient	The Recipient of a Permit that is to be transferred to a New Recipient
Earthed	Effectively connected to the general mass of earth.
Earthing Device	An approved device to effectively connect equipment to the general mass of earth.
Earth switch	A switch that when closed provides an electrical connection between equipment and the general mass of earth.
Energised	Connected to or containing a source of energy, e.g., electrical, steam, compressed air, hydraulic.
Equipment	Electrical and mechanical apparatus and civil infrastructure, which is typically fixed in location, and used for generation, transmission, or distribution of electricity.
Extra Low Voltage [ELV]	Any voltage normally not exceeding 50 volts AC or 120 volts ripple-free DC

Gate	Spillway, sluice, headgate, control gate or valves performing the same (or similar) function
General Work	A Minor Works Management System, applied to manage work that presents no risk to equipment operation, or resource consent compliance.
Generation Controller (Function)	An employee at a Generation Control Centre with Point of Control for plant operation within their area of responsibility.
Hazard	Anything that can cause harm, including a person's behaviour, that has the potential to cause death, injury, or illness to a person.
High Voltage [HV]	Any voltage exceeding 1000 V ac. or 1500 V dc.
In Service	The state of equipment that is not isolated: and is in a state to perform its designated function.
Isolated	Deliberately disconnected from external sources of harm, e.g., energy (electrical or mechanical) or asphyxiating, toxic or flammable gas, and rendered incapable of being reconnected without deliberate action.
Isolation (De-isolation) Instruction	A list of operating instructions (not sequenced) compiled in an approved format required to isolate or de-isolate a defined asset or equipment.
Isolation Point	A location designed as a facility to safely disconnect, separate, or provide a barrier between an energy source and intended work area for any work management system
Issuer	A competent worker that administers WA/AP/TP and Assurance documentation as prescribed within Issuer responsibilities.
Issuer Applied Safety Measures [IASM]	Safety measures under a Work Management System applied by, or on behalf of the Issuer for work or testing on equipment presented in a defined state, removed from and unavailable for service
Hazard ID and Risk Management Process	Summary of work scope, associated hazards and their controls and work party acknowledgement, understanding and compliance with these controls. Includes Job Safety Analysis and Worksite Safety Plans
Limited Testing	Limited testing is permitted under an AP, but only after a risk assessment has been completed to ensure such testing has insufficient capacity to cause harm.
Live	Connected to a source of electrical supply or subject to hazardous induced or capacitive voltage.
Live Work	Work performed inside the minimum approach distance of equipment that is live.
Lock Box	A lockable facility for securing keys, fuses etc. associated with safety measures controlled under a Works Management System.
Low Voltage [LV]	Any voltage exceeding 50 V ac. or 120 V ripple free dc. but not exceeding 1000 V ac. or 1500 V dc.
Main Boundary Isolation	IASM's on energy sources that form the main perimeter of isolations for a permit. These are of a nature that if altered, would introduce a safety risk to a work party.
Major Isolations	IASM's that isolate a primary or significant energy source or are of a nature that if altered would introduce a safety risk to a work party. Can be a main boundary isolation or within the perimeter.
Minimum Approach Distance [MAD]	The MAD is the minimum safe distance that workers, vehicles, and mobile plant shall be separated from live conductors to prevent the risk of accidental contact and electric shock.
Minor Works Management System [MWMS]	A system used to manage work where an Access Permit, or Test Permit is not required, and the supervisor manages the control measures. General work or a work authority is used in this context.
New Recipient	A Recipient accepting a Permit via the Recipient transfer process.
Objective	The purpose or outcome required for an operating order or isolation (de-isolation) instruction.

Operating Action	An action that changes the status of equipment. Achieved automatically, manually, remotely, or actioned though an operating order or isolation instruction.
Operational Control	The assigned authority and ability to change the status of equipment.
Operational Locks	Locks used to maintain the operational status of plant and equipment, or control access to operational areas.
Operating Order [OO]	A planned sequence of operating actions (or a single action) that has been compiled in an approved format
Outage	The release of equipment or plant via a formal request and approval process.
Permit Area	The defined work area for an Access Permit or Test Permit
Permit Competency	An employer recognition of training and experience stating a person is competent to be an AP/TP Recipient, Issuer, or both.
Planning Function	Roles that support planning and coordination of work and work safety.
Plant	Additional to equipment, infrastructure at or associated with a generation facility.
Plant Outage Request [POR]	Formal request for an outage on generation equipment.
Plant Status Control	Measures required for managing changes to the status of plant rather than personal safety during a Work Control Procedure. Managed under RASM protocols.
Point of Control [POC]	The responsibility from which operational control of equipment is held within an organisation.
Portable Earth	An approved portable earthing device for temporarily earthing isolated equipment.
Pre-Work Planning	The process of developing a work plan prior to work commencing.
Primary Energy Source	The main source(s) of energy used to energise equipment e.g., live high voltage, high pressure steam, penstock pressure water
Production	Continuity of planned generation
Receiver	The person receiving an Assurance that safety measures have been applied as requested to assets under the control of the sender.
Recipient	A competent worker that receives and manages Work Authorities, Access, or Test permits.
Recipient Applied Safety Measures [RASM]	Safety measures applied by or on behalf of the work site Supervisor for General Work, or Recipient for Work Authorities, Access, and Test Permits.
Recipient Applied Safety Measures Register	Formal record of all recipient-applied measures to ensure safe management of isolation points or plant status.
Remote Access	Access to plant and equipment systems (e.g., control, protection, communication) via a network when physically located elsewhere.
Risk	Potential exposure to situations that may affect people's health and safety, plant and equipment operation or the environment.
Safety Manual - Electricity Industry [SM-EI]	Guidance on safety practices published by the electricity supply industry.
Safety Measures	Actions taken to present equipment in an agreed state.
Safety Measure Competence	Competence to apply safety measures as specified in the applicable WCP
Sender	The person sending an Assurance that safety measures have been applied as requested to assets under the control of the sender.
Standard Operating Procedures [SOP]	A documented and approved procedure or instructions for an established routine or specific operational activity.
State of Equipment	A description of the current status of the equipment.

Stored Energy	Any form of energy that remains in a system after it has been isolated, and which could unexpectedly release and cause harm if not properly controlled.
Supervisor (Access Permit)	A role performed by the Recipient, or competent person(s) agreed with the Recipient, with specific responsibilities for the Access Permit process, safety and integrity.
Supervisor (Test Permit)	A role performed by the Recipient with specific responsibilities for the Test Permit process, safety, and integrity.
Supervisor (Test Permit Work Position)	An additional role appointed by the Test Permit Recipient with specific responsibilities for work position process, safety, and integrity for every working position that the Recipient of a Test Permit cannot supervise directly.
Supervisor (Work Party)	A role performed by a competent person at the worksite responsible for the safety, quality, and control of the work activity.
Suspension	Status of an Access Permit when it is returned by the Recipient to the Issuer but not reissued or cancelled. A Test Permit shall not be returned for suspension.
Switchyard	A restricted area, enclosed by a security fence or other secure boundary, containing normally energised conductors and equipment.
Tag	A label used to visually identify a safety measure or isolation point.
Test Permit [TP]	A Works Management System used to present equipment in an agreed and defined state for testing, using Issuer applied safety measures, where testing includes the introduction of primary energy sources, test voltages or potentially lethal hazards. The process allows for the agreed removal of IASM's to facilitate testing.
The (Operational) Log	A complete record of all operating actions and events, time stamped as they occur.
Transfer (Permit)	The process of transferring a Permit from one Recipient to another.
Work Authority [WA]	A Minor Works Management System, for work on or near in service or available for service equipment where that work may present a risk to equipment operation or affect resource consent compliance.
Work Authority Competence [WAC]	An employer recognition of training and experience stating a person is competent to be a work authority Recipient, Issuer, or both.
Work Management System	A documented system to control risks for work on or near equipment which is presented in an agreed and defined state. An Access Permit, Test Permit or Assurance is used in this context.
Work Position	The location(s) where work activity is taking place.