Invitation to Provide Comment on the Draft National Guidelines for Safe Access to Electrical and Mechanical Apparatus

Dear Stakeholder,

On behalf of Energy Networks Australia I am pleased to advise that ENA document *NENS 003 – 2006 National Guidelines for Safe Access to Electrical and Mechanical Apparatus* is currently being revised. I invite you to provide comment on the content and intent of the enclosed Draft Guidelines Doc 003[1].

This is a key guiding reference document which is widely used for the safe access to apparatus for maintenance and operation in and around the Australian electricity supply industry. As a touchstone this document is central to a nationally consistent and efficient approach to safety.

The revision has been triggered to update the document to contemporary practice and compliance requirements, for new and emerging technologies in safe access (arc flash safety, electronic process documentation, network automation) and for changes in Networks and their traditional and new interface partners (embedded generation, large scale solar and wind generation and storage).

Please take the time to review and contribute to improving the guideline we all benefit from.

Please provide any comments to the Consultant Reviewer Terry Lampard on terrence.lampard@bigpond.com **before 19 March 2021**.

Yours sincerely,

Tony Niven

Chair of the ENA NENS 03 Reference Group

[1] To be renamed Doc 03 sits among the ENA's suite of industry guidelines, codes, specification documents and technical reports available at: https://www.energynetworks.com.au/news/list-of-current-guidelines/

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NATIONAL GUIDELINES FOR SAFE ACCESS TO ELECTRICAL AND MECHANICAL APPARATUS

ENA DOC 003 – 2021

Energy Networks Australia

DISCLAIMER

This document refers to various standards, guidelines, calculations, legal requirements, technical details and other information.

Over time, changes in Australian Standards, industry standards and legislative requirements, as well as technological advances and other factors relevant to the information contained in this document, may affect the accuracy of the information contained in this document. Accordingly, caution should be exercised in relation to the use of the information in this document.

Energy Networks Australia accepts no responsibility for the accuracy of any information contained in this document or the consequences of any person relying on such information.

Correspondence should be addressed to the Industry Standards Officer, Energy Networks Australia, at info@energynetworks.com.au or Unit 5, Level 12, 385 Bourke Street Melbourne VIC 3000.

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Key Information

Document Category	Guideline
Functional Domain	Construction/Maintenance
Designation	ENA DOC 003-2021
Version No	1.0
Title	National Guidelines for Safe Access to Electrical and Mechanical Apparatus
Scope of Revision	The guidelines have been updated to reflect current industry practice and standards
Reason for review	A number of issues have arisen since the last revision of these guidelines which have been addressed.
Material changes	A number of changes have been made to the detail of the document to reflect current practices and standards.
Review Leader	Tony Niven, Powerlink Queensland
Revision Working Group	Tony Niven, Powerlink Queensland, Anthony Baerwinkel Endeavour Energy. Christopher Websdale, Ausnet Services, Darren Jenkins, Ausgrid, Edward Sellwood, Essential Energy; Monaaf Al-Falahi ENA, Phil Guest, Essential Energy,. Rick Wallace, Endeavour Energy, Terry Lampard
Work leading up to revision	Provide a short narrative of the work for the revision and what occurred. Include consultation undertaken and any individuals who may have done specific research or engagement with the process.
Supersedes	ENA NENS 03—2006 NATIONAL GUIDELINES FOR SAFE ACCESS TO ELECTRICAL AND MECHANICAL APPARATUS
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Acknowledgements

This is a Reference Group project of Energy Networks Australia insert relevant reference group.

The Energy Networks Australia NENS03 Industry Working Group has broad national representation from a number of industry representatives and has access to a large database of industry guidelines, policies, reference standards and design manuals.

Energy Networks Australia has Members across Australia's electricity distribution and transmission and gas distribution companies. For the development of this guideline the following industry organisations were represented on the Working Group:

- Ausgrid
- Ausnet Services
- Endeavour Energy
- Energy Queensland
- Essential Energy
- Powerlink Queensland

The remaining companies represented by Energy Networks Australia, but not on the Reference Group, were actively engaged throughout the preparation, review and comment stages of the draft document.

In addition, a number of technical experts and broader stakeholders have also been consulted during the revision of this document.

The Reference Group would like to acknowledge the assistance of all these parties and specifically:

- List people if there are specific people to thank …

Documents of Energy Networks Australia

History of Energy Networks Australia

Energy Networks Australia is the peak national body representing Australia's gas distribution and electricity transmission and distribution companies. Established in its current form in 2004 it has a long history of industry representation, operating under different names over the years to reflect the sector transformation.

With more than 16 million customer connections across the nation, Australia's energy networks provide the final step in the safe, reliable delivery of gas and electricity to virtually every home, business and industry in the country.

Documents

Part of Energy Networks Australia's role is the development and management of support material such as codes, specifications, guidelines and handbooks to support the energy industry and members of the public in the interpretation and application of legislation and standards. All documents are written in collaboration with the industry through reference groups and general consultation with Energy Networks Australia's members.

This Guideline is just one document in a framework of information designed to support the energy sector. Network Operators and Service Providers should refer to all current Energy Networks Australia Guidelines. A full list of documents can be obtained from Energy Networks Australia at http://www.energynetworks.com.au/industry-guidelines.

Definitions and Abbreviations

All Energy Networks Australia documents utilise a single definition list located on the Energy Networks Australia website. This is to ensure all documents use consistent definitions across Energy Networks Australia documents. This is not an attempt to define all terms in the energy industry and organisations may use different definitions. It provides consistency across documents authored by Energy Networks.

All Energy Networks Australia documents utilise a single abbreviations list located on the Energy Networks Australia website. This is to ensure all documents use consistent abbreviations across Energy Networks Australia documents.

Definitions that expand on the ENA definitions for the purpose of this Guideline, or are particular to this Guideline follow:

Access authority – means any form of authorisation, which allows access to work on or *near*, or for the testing of, *electrical apparatus* and *mechanical apparatus* (See Annex F – Sample *Access authority).*

Access authority earth – means *approved* earthing and short-circuiting equipment applied to *electrical apparatus*, as a requirement for the issue of an *access authority*, to ensure the *electrical apparatus* is *earthed*.

Apparatus – means *electrical apparatus* and *mechanical apparatus*.

Note: For the purpose of these guidelines, *apparatus* includes *mechanical apparatus*.

Authorised person in charge – means an *authorised person* to whom an *access authority* has been issued and is the person responsible for compliance with the requirements of the *access authority*.

Barrier – means a rope, tape, barricade or alternative erected in accordance with *approved procedures*. (See Annex A – *Barriers* and Signs).

Cable – means an insulated *conductor*, or two or more such *conductors*, laid together, whether with or without fillings, reinforcements or protective coverings.
NOTE: Cable for the purpose of these Guidelines also means aerial bundled cables.

Cancellation of an access authority – means an *access authority* has been surrendered and authorisation for access to work on or *near*, or test, *apparatus* has been terminated.

Control authority – means an organisation that is responsible for the control of the *apparatus* concerned.

Control measures – means policies, standards, *procedures* or actions to eliminate, avoid or minimise risks.

Do not operate tag – means an *approved* tag, used in accordance with *approved procedures*, warning of a particular hazard or hazardous condition that is likely to be life threatening.

Electrical operating work – means work involving the operation of switching devices, links, fuses or other connections intended for ready removal or replacement, proving electrical *conductors de-energised*, earthing and short- circuiting, locking and tagging of *electrical apparatus* and erection of *barriers* and signs.

Note: For the purpose of these guidelines, *electrical operating work* includes earthing and short-circuiting.

Energised – means connected to any source of energy.

> Note: For the purpose of these guidelines, the term "*energised*" applies to any source of energy which may be present in *electrical apparatus* and *mechanical apparatus.*

Extra low voltage or *'ELV'* – means a nominal voltage not exceeding 50 volts alternating current or 120 volts direct current.

Instructed person – means a person adequately advised or supervised by an *authorised person* to enable them to avoid the hazards, which may be present.

> Note: For the purpose of these guidelines, dangers include those arising from *mechanical apparatus.*

Mechanical apparatus – means any equipment used in the generation or *supply* of electricity that has the ability to rotate, or is pneumatic or hydraulic in nature or contains stored energy through mechanisms, liquid or gas contained within the equipment.

Mechanical operating work – means the operation of devices that control sources of energy, such as, mechanical, hydraulic, pneumatic or fuel energy and the implementation of *control measures* to prevent the unintentional release of that energy such as the locking and tagging of *mechanical apparatus* and the erection of *barriers* and signs.

Mobile plant – means cranes, elevating work platforms, tip trucks or similar plant, any equipment fitted with a jib or boom and any device capable of raising or lowering a load.

Not electrically connected – means *electrical apparatus* disconnected from all sources of *supply* by the removal or absence of *conductors*, appropriate to the voltage and insulating medium and, not able to be *energised* by *electrical operating work* and identified in accordance with *approved procedures*.

Personal protective equipment (PPE) – means clothing, equipment and/or substances, which when worn or correctly used, protect parts or all of the body from foreseeable risk of injury or disease at work or in the workplace.

Surrender of an access authority – means notification in writing by the *authorised person in charge* that all persons signed on the *access authority* have ceased work and have signed off the *access authority* as recognition that their access to the *apparatus* has been relinquished.

Suspension of an access authority – means that all persons signed on an *access authority* have ceased work and have signed off the *access authority* as recognition that their work is suspended and *shall* not recommence until access is granted by the *control authority* and they have re-signed on the *access authority.*

Working earth – means *approved* earthing and short-circuiting equipment applied to *electrical apparatus*, additional to *access authority earths*, following the issue of an *access authority*.

Objective

The objective of this guideline is to provide:

a. Assistance in the development and application of safe and nationally consistent requirements for access to apparatus associated with the generation, transmission and distribution of electricity

b. Alignment with the relevant Australian Standards

The principles and responsibilities within this document, where appropriate, should be supplemented by approved procedures.

This document is intended to complement, but not substitute or override, a number of jurisdictional regulatory requirements and Australian Standards. The aim is to provide additional information to guide the development of appropriate, fit for purpose and consistent solutions for safe access to electrical and mechanical apparatus.

This document does not stipulate prescriptive details in the design, construction, operation and maintenance of electricity network apparatus and/or operating procedures. Consistency of approach in the detail will be delivered by way of this document together with the relevant legislation, codes and standards. Individual organisations will then establish their own safety management systems together with the attendant design standards and detailed manuals established in accordance with the provisions of AS 5577 Electricity Network Safety Management Systems.

Application

This guideline provides principles and responsibilities for network operators, control authorities, service providers and contractors for access to apparatus associated with the generation, transmission and distribution of electricity.

Scope

These Guidelines detail the minimum general requirements for work to be carried out in the provision of access authorities and under access authorities. These Guidelines are not intended to cover specific requirements for other work such as welding and cutting, working at heights, mobile plant, confined spaces, excavation work or work on extra low voltage exposed conductors.

This guideline does not apply to the following work processes:

a) Live high voltage working. Reference should be made to AS 5804 series High-voltage live working.
Note: *Electrical operating work* is within the scope of these guidelines.

b) Work on energised low voltage apparatus. Reference should be made to ENA Doc 044-2020 Guideline for energised low voltage work.

c) Work on low-voltage electrical installations. Reference should be made to AS/NZS 4836 Safe working on low-voltage electrical installations.

Referenced Documents

The following documents are referred to in this document:

Document Code	Title
AS 1319	Safety signs for the occupational environment
AS/NZS 1891 series	Industrial fall-arrest systems and devices
AS/NZS 1892 series	Portable ladders
AS 2550	Cranes – Safe use
AS/NZS 2865	Safe working in a confined space
AS 4204.1	Safety of Machinery
AS/NZS 4024.1201	Safety of machinery - General principles for design – Risk assessment and risk reduction
AS/NZS 4360	Risk Management
AS/NZS 60479	Effects of current on human beings and livestock
AS/NZS IEC 60903	Live working – Electrical insulating gloves
AS/NZS IEC 61111	Live working – Electrical insulating mats
ENA DOC 001 - 2019	National Electricity Network Safety Code
ENA NENS 04	National Guidelines for Safe Approach Distances to Electrical Apparatus
ENA NENS 09	National guidelines for selection, use and maintenance of PPE for electrical arc hazards
ENA DOC 042	National guidelines for manual reclosing of high voltage electrical apparatus following a fault operation (Manual reclose guidelines)
ENA EG-0	Power system earthing guide, PART 1 Management principles
IEC 60855 series	Live working- Insulating foam-filled tubes and solid rods
IEC 61230	Live working - Portable equipment for earthing or earthing and shortcircuiting
IEC 61243 series	Live working – Voltage detectors

1 GENERAL

1.1 Training, assessment and authorisation

~~A person required to carry out any designated functions in accordance with an organisation's requirements for access to apparatus (commonly known as access rules or safety rules) shall be trained, assessed as competent and authorised to perform such tasks and be reassessed at appropriate intervals to ensure their competency is maintained (See Annex D - Competency Standards).~~

A Network Operator's safe system of work shall include reference to appropriate training, competency and authorisations for all persons working on or near electrical apparatus.

A person's competency and/or authorisation shall be current for the task being performed.

Persons holding authorisations shall be competency assessed at a nominal three-yearly interval and where appropriate training given to restore competency.

Training will consist of identified learning outcomes which will be knowledge, skill (task), and attitude based and where appropriate, reflect National Competency Standards.

Where a national or state competency standard does not exist, an organisation may develop a training and assessment standard in consultation with a Registered Training Organisation

A person may perform a task that normally requires authorisation or approval, (e.g. HV live work, HV operating) when that task is performed under a training program and the person is suitably supervised.

1.1.1 Learning outcomes

Learning outcomes shall meet those described State and National Training Standards

Where learning outcomes are established at an organisational level, the course descriptors shall include learning outcomes and assessment criteria.

~~**Approved competency standards**~~

~~Introduction~~

~~Training shall make use of identified units of competence within a set of appropriate competency standards and include performance criteria that demonstrate the knowledge, skills and attitudes required for competent performance. These units of competence (where appropriate), should reflect the Electricity Supply Industry National Competency Standards. Each standard shall include—~~

~~(a) assessment criteria for each recognised unit of competence;~~

~~(b) documented evidence of the assessment process;~~

~~(c) a documented process for recognising prior learning and current competence; and~~

~~(d) an assessment for competence against all performance criteria, relevant to each unit of competence and such assessment shall be documented (check sheets, etc).~~

~~Units of competence~~

~~Units of competence shall include, but not be limited to, the following:~~

~~(a) required knowledge, which shall include relevant communication processes; relevant rules and procedures; and the consequences of any physical tasks performed;~~

~~(b) range of variables statement, which provides details of relevant—~~

(i) forms and documentation;

(ii) risk management practices;

(iii) work practices; and

(iv) apparatus, equipment and plant;

(c) an evidence guide which provides details regarding—

(i) the context in which assessment will take place;

(ii) the allowable variations in an assessment; and

(iii) the requirements for a person to demonstrate the application of acquired knowledge during practical simulations, scenarios etc;

(d) a clear understanding of the responsibilities associated with relevant authorisations, for example, the range of responsibilities associated with a person who issues an access authority; and

(e) other training as required.

Approved training courses and processes

Approved course descriptors shall comply with recognised standards. The descriptors for each course shall address the requirements of each unit of competence and the appropriate assessment processes.

1.1.2 Approved Training Providers

Network Operators shall approve training providers as meeting the requirements of jurisdictional safety regulators. Training providers shall document:

- Assessment methods.
- Process for recognition of prior learning.

Training and assessment records

An appropriate management system for the recording of all training and authorisations shall be developed, implemented and audited.

1.1.3 Training Records

Network Operators shall maintain systems for recording of all training and authorisations.

1.2 Risk management

A documented risk management process shall be in place to address risks associated with work practices, the work environment, and the use of materials, plant, tools and equipment. Such a process shall—

(a) identify the hazard;

(b) assess the risk;

~~(c) determine and implement control measures; and~~

~~(d) monitor and review the effectiveness of the risk management process.~~

Consistent with the principles in ENA Doc 001 National Electricity Network Safety Code, in accordance with approved procedures, hazards shall be identified and the associated risks assessed and controlled prior to working on or near any Electrical Apparatus.

The appropriate risk management approach is outlined in AS/NZS ISO 31000 Risk Management Principles and Guidelines and AS 5577 Electricity Network safety management systems.

Particular attention shall be given to planning for and responding to emergencies.

1.3 Hazardous situations, occurrences or effects

Measures shall be taken, in accordance with approved procedures, to control the risks from hazardous situations. Examples of hazards that may be encountered include, but are not limited to, the following—

(a) ~~lightning~~ environmental conditions (e.g. lightning, wind, temperature extremes, rain dust, noise etc.);

(b) ~~electro-magnetic field effects~~ electric and magnetic fields;

(c) step and touch potentials, and induced and transferred voltages;

(d) breaking of earthing grids , including theft of earthing conductors;

(e) unintentional energising of apparatus;

(f) neutral and earthing system currents;

(g) feedback from secondary circuits and/or generators;

(h) capacitance, stored energy devices and backfed energy from embedded generators;

(i) movement of overhead conductors;

(j) use of mobile plant in the vicinity of electrical apparatus;

(k) handling large conductive items;

(l) catenaries of communication cables with differing earthing arrangements;

(m) confined spaces;

(n) welding and cutting;

(o) working at heights;

(p) mechanical hazards such as rotational, pinching, lifting, etc;

~~(q) temperature,~~

(q) electrical arcing

(u) unintentional defeating of control measures, including removal of earths, knobs, barriers and locks, and

(v) pressure vessels

(w) hazardous substances, oil handling and chemical spills, and

(x) vehicular traffic

1.4 Safety and test equipment

Safety and test equipment used in relation to work associated with these Guidelines shall be specified, inspected, maintained and tested as required by approved procedures and relevant standards. Records of inspections, tests and maintenance of such equipment shall be kept. Safety and test equipment should include, but is not limited to—

(a) safety belts and harnesses, and controlled descent devices (refer to AS/NZS 1891 series: Industrial fall-arrest systems and devices);

(b) insulating gloves (refer to AS/NZS IEC 60903 Live working – Electrical insulating gloves) and mats (refer to AS/NZS IEC 61111 Live working – Electrical insulating mats);

(c) equipment for proving electrical apparatus de-energised (refer to IEC 61243 series: Live working – Voltage detectors);

(d) high voltage operating equipment (for example, high voltage operating rods, refer to IEC 60855 series: Live working- Insulating foam-filled tubes and solid rods);

(e) portable earthing and short-circuiting equipment (refer to IEC 61230: Live working - Portable equipment for earthing or earthing and shortcircuiting);

(f) electrical arc hazard PPE (refer to ENA NENS 09 National guidelines for selection, use and maintenance of PPE for electrical arc hazards);

(f) rescue and first aid kits;

(h) cable spiking equipment;

(i) cable identification equipment;

(j) gas detection and monitoring equipment;

(k) personal protective equipment;

(l) lifting equipment (refer to AS 2550 Cranes – Safe use);

(m) ladders (refer to AS/NZS 1892 series: Portable ladders);

(n) hydraulic/pneumatic test equipment

2 GENERAL REQUIREMENTS FOR ACCESS AUTHORITIES

2.1 General

The requirements of Section 2 apply to access authorities associated with *electrical apparatus* and *mechanical apparatus*.

2.1.1 Principles

(a) For the purpose of these guidelines an *access authority shall* be recorded ~~in a documented form~~ in a formal Records Management System. Paper-based and electronic formats both meet the requirements of these guidelines. Other formats may be acceptable provided that they are formally recorded.

(b) The control authority shall specify apparatus that requires access under an access authority.

(c) Prior to commencement of work under an access authority the following steps shall be carried out in accordance with approved procedures—

(i) identify the apparatus;

(ii) isolate the apparatus from unwanted energy sources;

(iii) ~~take precautions~~ effective control measures to ensure the apparatus remains isolated. Where practicable, do not operate tags are required as a warning against unintentional and unauthorised operation of apparatus. Persons shall not remove or alter in any way any tags that have been applied, without consulting the control authority (see Annex B – Sample Tags);

(iv) prove the apparatus is de-energised;

(v) earth and short-circuit the electrical apparatus including Access Authority Earthing and LV short circuits where necessary;

(vi) equipotential bonding where necessary;

(vii) non-lockable single-phase devices;

(viii) define the safe work area, conditions and hazards where appropriate; and

(ix) issue an access authority.

2.2 Request for access

2.2.1 Principles

(a) Where work associated with the apparatus is to be undertaken a request for access shall be submitted to the control authority in accordance with control authority approved procedures.

(b) A request shall clearly state—

(i) the details of the apparatus to be worked on;

(ii) the description of work; and

(iii) other relevant information that assists the control authority in preparing the apparatus for the work as requested.

2.3 Preparation for the issue of an access authority

2.3.1 Principles

(a) Where a documented instruction is required to prepare the apparatus for access, it shall be prepared and endorsed by an authorised person to comply with the control authority requirements.

(b) Each documented instruction shall have a unique reference.

(c) The content and accuracy of a documented instruction shall be checked and validated in accordance with control authority approved procedures.

(d) Where actions or precautions are to be carried out on apparatus controlled by another control authority to prepare for access, confirmation shall be received in accordance with approved procedures using agreed nomenclature that such actions or precautions have been carried out. Refer to Appendix G for further information.

(e) When the steps set out in a documented instruction require alteration they shall be altered in accordance with approved procedures.

(f) The documented instruction shall consist of a comprehensive list of tasks that must be carried out in order to provide safe access to the apparatus subject to the request for access. This will include all apparatus that must be operated, a sequence of operation, disabling of automatic switching and installation of locking devices, installation of physical devices segregating apparatus under access from energised apparatus, installation of earths, and any checks necessary to prove that apparatus has been successfully de-energised in accordance with the documented instruction.

2.4 Issue of an access authority

2.4.1 Principles

(a) An access authority shall have a unique reference.

(b) An access authority form (see Annex F – Sample Access Authority) shall include—

(i) the identification of the apparatus to be worked on;

(ii) the extent of access to the apparatus including a description of isolation points and earths;

(iii) confirmation that the isolation, earthing as applicable and other control measures have been carried out;

(iv) any other relevant information as applicable such as hazards, remaining stored energies, secondary systems, draining, venting, etc; and

(v) provision for declaration of issue, receipt and cancellation. Additionally an access authority should include—

(vi) the description of work to be carried out;

(vii) where relevant, provision for declaration of suspension or transfer; and

(viii) the tags affixed to the points of isolation and earthing.

NOTE: Where information on the description of work or the type of tags attached are not included on the access authority, alternative methods for communicating these requirements should be in accordance with approved procedures.

(c) An access authority shall only be issued by an authorised person.

2.4.2 Responsibilities

2.4.2.1 Authorised person issuing an access authority

The authorised person issuing an access authority shall ensure that, prior to issuing the access authority—

(a) any barriers and signage required for the purposes of issuing the access authority are erected;

(b) any warnings and/or instructions, as applicable, are entered on the access authority;

(c) all local isolations have been completed and, where necessary, confirmation has been received that all isolations remote from the work area have been completed;

(d) all earths, bonds and short circuits have been applied in accordance with approved procedures

(d) in accordance with approved procedures, the authorised person in charge and the authorised persons present who are to sign on the access authority, demonstrate an understanding of—

(i) the limits of the access authority;

(ii) the points of isolation and/or confirmation that the isolation has been completed;

(iii) the precautions and control measures that have been taken;

(iv) any relevant warnings and/or instructions;

(v) the location of all access authority earths, where applicable; and

(vi) the location of any adjacent live conductors. (See Annex A – Barriers and Signs);

(e) in accordance with approved procedures, the instructed persons present who are to sign on the access authority, demonstrate an understanding of—

(i) the instructions given on the work to be undertaken; and

(ii) the limits of the access authority and are aware of any relevant warnings;

(f) they satisfy themselves that the access authority provides access for the work as requested and is appropriate to the work to be carried out; and

(g) the access authority is endorsed as issued.

2.5 Receipt of an access authority

2.5.1 Principles

(a) Only an authorised person shall receive an access authority.

(b) Persons required to work under an access authority shall—

(i) be either an authorised person or be an instructed person; and

(ii) not commence work until they have signed the access authority.

2.5.2 Responsibilities

2.5.2.1 Authorised person in charge

The authorised person in charge shall—

(a) satisfy themselves that the access authority provides access for the work as requested and is appropriate to the work to be carried out;

(b) understand the limits of the access authority, the precautions and control measures that have been taken and any relevant warnings;

(c) ensure control measures, as required, are applied, such as the installation of any working earths, barriers or signage and the appointment of a safety observer;

(d) endorse the access authority as having been received;

(e) ensure the limits of the access authority, the precautions, control measures and any warnings or instructions, as applicable, that are entered on the access authority are communicated to, and are observed by all persons signing on the access authority;

(f) ensure no member of the work party commences work until they have signed on the access authority;

(g) ensure persons signed on the access authority are appropriately supervised;

(h) ensure the access authority is available for the duration of issue;

(i) where a barrier is established, ensure—

(i) approved procedures are used for the control of personnel within, or when leaving or returning to the barrier area;

(ii) where it is necessary to alter the barrier that it is carried out in accordance with approved procedures;

(j) be present at the work area to the extent necessary to exercise their responsibility; and

(k) ensure that where access authority earths are required to be removed, and where necessary replaced, it is done in accordance with approved procedures.

2.5.2.2 Authorised person signing on an access authority

The authorised person signing on an access authority shall ensure that, relevant to their work—

(a) they are informed of, and understand, the limits of access to the apparatus;

(b) they are informed of, understand and are satisfied with the control measures applicable;

(c) they are informed of, understand and comply with the safety directions and warnings given;

(d) they sign on the access authority to indicate they acknowledge the requirements of items 2.5.2.2 (a), (b) and (c) above;

(e) when leaving or returning to the barrier area they do so in accordance with approved procedures; and

(f) where required, they advise or supervise instructed persons on the avoidance of the hazards present.

2.5.2.3 Instructed person signing on an access authority

The instructed person signing on an access authority shall ensure that, relevant to their work—

(a) they understand the instructions given on the work to be undertaken;

(b) they understand the limits of the access authority and are aware of any relevant warnings;

(c) they sign on to the access authority to indicate their understanding of the above requirements of items 2.5.2.3 (a) and (b) above;

(d) they follow any safety directions given by the authorised person in charge; and

(e) when leaving or returning to the barrier area they do so in accordance with approved procedures.

2.6 Transfer of responsibility of an authorised person in charge

2.6.1 Principle

Where it is necessary to change the authorised person in charge it shall be carried out in accordance with approved procedures.

2.7 Suspension of an access authority

2.7.1 Principles

(a) Where the control authority deems it necessary to suspend an access authority, it shall be suspended in accordance with approved procedures.

NOTE: For example, the control authority may require testing of apparatus that necessitates work under the access authority to cease and subsequently recommence after testing. In this case access to the apparatus for work during testing is not permitted.

(b) Where the control authority deems it necessary to suspend an access authority all persons shall sign off the access authority.

(c) Access to the apparatus shall only resume where the conditions that established the access before the access authority was suspended have not altered.

2.7.2 Responsibilities

2.7.2.1 Authorised person in charge

(a) The authorised person in charge of an access authority which is to be suspended shall ensure that—

(i) persons signed on the access authority have signed off and are notified that access to the apparatus has been suspended and no further access is permitted; and

(ii) the control authority is notified of the status of the apparatus at the time of the suspension of the access authority.

(b) The authorised person in charge of an access authority where work is to recommence shall ensure each person, before he or she signs on the access authority to recommence work, is informed of the limits of the access authority, the precautions, control measures and any warnings or instructions, as applicable.

2.7.2.2 The control authority

Where access to the apparatus is to resume under the access authority, the control authority shall—

(a) advise the person who is to be the authorised person in charge of any alterations or modifications to the limits of the access authority, the precautions, control measures and any warnings or instructions, as applicable, under the access authority;

(b) grant permission for access to the apparatus to resume under the access authority.

2.8 Surrender and cancellation of an access authority

2.8.1 Responsibilities

2.8.1.1 Authorised person in charge

Before an access authority is surrendered, the authorised person in charge shall ensure that—

(a) all working earths have been removed;

(b) all persons signed on the access authority have ceased work covered by the access authority, are clear of the apparatus and have been instructed to remain clear, and have signed off the access authority;

(c) the control authority is advised in accordance with approved procedures of any information regarding the state of the apparatus which would affect its operation or return to service; and

(d) they sign to indicate that the access authority is surrendered, that all persons are clear of the apparatus and understand that no further access is permitted, and the apparatus shall be regarded as energised or available for service;

NOTE: Where a person is not available to sign off the access authority, the access authority shall be signed off in accordance with approved procedures.

2.8.1.2 Authorised person cancelling the access authority

When an access authority is to be cancelled, the authorised person cancelling the access authority shall ensure that—

(a) all persons signed on the access authority have signed off;

(b) the access authority has been signed by the authorised person in charge to indicate that the access authority is surrendered; and indicate that the access authority is surrendered; and

(c) the access authority is cancelled.

3 WORK ON OR NEAR HIGH VOLTAGE ELECTRICAL APPARATUS

All high voltage exposed conductors shall be regarded as live until isolated, proven de-energised, earthed and short-circuited in accordance with approved procedures.

3.1 Electrical operating work

3.1.1 Principles

(a) Electrical operating work shall only be carried out by an authorised person.

(b) Electrical operating work shall be carried out at the direction of the control authority in accordance with approved procedures.

(c) Electrical operating work on or near high voltage exposed conductors shall be carried out using approved operating equipment.

(d) Electrical operating work on or near high voltage exposed conductors that are within safe approach distances shall be carried out in accordance with approved procedures.

(e) In emergency circumstances involving danger to life or damage to apparatus, electrical operating work and/or other appropriate emergency operations shall be carried out in accordance with approved procedures provided the person carrying out the emergency operations considers it safe to do so. The control authority shall be advised of the emergency circumstances and of the emergency operations undertaken as soon as practicable.

(f) Electrical apparatus shall not be energised or re-energised unless:

(i) all relevant access authorities are cancelled and all persons are clear;

(ii) the electrical apparatus is in a state suitable for energisation;

(iii) all equipment, plant, tools and materials are removed as appropriate;

(iv) all earths, short-circuits and equipotential bonds, if used, are removed;

(v) appropriate checks and tests are carried out to ensure apparatus is safe for service; and

(vi) approval is given by the control authority to energise or re-energise.

3.2 Preparation of electrical apparatus for work on or near high voltage exposed conductors

3.2.1 Principles

(a) When work is to be performed on or near high voltage exposed conductors the conductors shall be isolated from all possible sources of supply including backfeed from embedded generation and energy storage devices, proven de-energised and access authority earths applied.

(b) The effectiveness of the isolation shall be demonstrated by a visible break or where it is not practicable to demonstrate a visible break approved testing or earthing procedures shall be used.

(c) The conductors shall be proven de-energised, where practicable, at the proposed point of application of an access authority earth in accordance with an approved procedure. Where it is not practicable to prove conductors de-energised at the proposed point of application of access authority earths, approved procedures shall be used to ensure the conductors are de-energised prior to the application of access authority earths.

(d) Access authority earths shall be applied to conductors in accordance with approved procedures. Where access authority earths are required to be removed, and where necessary replaced, it shall be done in accordance with approved procedures.

(e) All relevant automatic and remote switching systems must be disabled to avoid inadvertent re-energisation.

3.3 Authority for work on or near high voltage exposed conductors

3.3.1 Principles

(a) An access authority shall be issued before any work commences on or near high voltage exposed conductors except when using approved procedures, for example, using approved water spray equipment for washing insulators.

(b) An access authority for work on or near exposed conductors and an access authority for electrical testing on the same conductors shall not be on issue at the same time.

3.4 Work on or near high voltage overhead lines

3.4.1 Principles

(a) If work on a high voltage overhead line is likely to infringe on safe approach distances of any other overhead line (for example, over or under crossing), the other overhead line shall be isolated, proved de-energised, earthed and an access authority issued.

(b) Control measures in accordance with approved procedures shall be adopted for live conductors above or below conductors under access.

(b) Before an access authority for work on an overhead line is issued, the line is to be identified at the work area in accordance with an approved procedure.

(c) In addition to Section 3.2, approved procedures to provide equipotential conditions and to control induced voltages and/or transferred earth potentials associated with isolated overhead lines shall be used.

(d) For electrical testing of high voltage overhead lines the requirements of Section 5.7 of these Guidelines apply.

3.5 Work on or near high voltage cables

3.5.1 Principles

(a) An access authority shall be issued for all work on high voltage cables, except in circumstances as detailed in 3.5.1 (c) and (d) below or in accordance with approved procedures.

(b) Before work commences on high voltage cables remote from their exposed terminations, approved procedures shall be implemented to identify the high voltage cables at the place of work.

(c) An access authority is not required to handle an in-service high voltage cable provided that the high voltage cable is surrounded by an earthed sheath or screen that is in a sound condition and control measures are taken to control the risk from induced voltages and transferred earth potentials.

(d) [Editor's note – discuss] An access authority is not required for work on an in-service high voltage cable or its attachments under the following conditions—

(i) if the work involves making direct contact with the metallic high voltage cable sheath or armouring, it shall only be carried out on those high voltage cables (or portions of high voltage cables) which are within the earth grid of a substation; or

(ii) in locations remote from a substation, control measures shall be taken in accordance with approved procedures to prevent earth potential rise or transferred earth potentials on the high voltage cable sheath.

(e) Access authorities shall address control measures related to earth potential rise and transferred earth potentials due to induced voltages for working on cables under access, which are earthed at the remote ends but cut at the work location.

3.6 Work on high voltage exposed conductors not electrically connected

3.6.1 Principles

(a) Where work is required on high voltage exposed conductors not electrically connected and there is no possibility of coming within safe approach distances of other live high voltage exposed conductors, then an access authority is not required.

(b) Control measures, in accordance with approved procedures, shall be applied where the hazard of induced and/or electrostatic voltage has been identified.

(b) Electrical apparatus shall be identified as not electrically connected in accordance with approved procedures prior to any work commencing.

(c) Where the work involves electrical testing on a section of high voltage exposed conductors that is not electrically connected, section 5.7 of these Guidelines shall be observed.

3.7 Electrical testing on high voltage exposed conductors

3.7.1 Principles

(a) An access authority for electrical testing shall be used when the electrical testing has the potential to produce currents hazardous to the human body. (Refer to Joint Australian/New Zealand Standard AS/NZS 60479, Effects of current on human beings and livestock, for further information).

(b) Electrical testing shall only be carried out in accordance with approved procedures. Approved procedures shall include, but not be limited to, the requirements that:

(i) an access authority for work on or near the exposed conductors under test shall not be on issue;

(ii) the points of isolation provide separation distances appropriate for the test voltages and the insulating medium;

(iii) control measures are taken to ensure persons are prevented from coming on or near the conductors while under test;

(iv) control measures are taken to ensure adjacent electrical apparatus and equipment do not become unintentionally energised during the test; and

(v) at the conclusion of the test, ensure any electrical apparatus under test that has become electrically charged during test is fully discharged and left in a safe condition. All access authority earths that were temporarily removed to allow the electrical testing to be carried out should be reapplied immediately.

(c) Where testing requires that one or more access authority earth(s) be temporarily removed, the electrical apparatus shall be regarded as being live, irrespective of whether or not the testing voltages have been applied.

(d) An access authority for electrical testing may not be required when testing high voltage electrical apparatus that is not electrically connected, however, such testing shall be in accordance with approved procedures to ensure the safety of persons and adjacent electrical apparatus or equipment.

4 WORK ON OR NEAR LOW VOLTAGE ELECTRICAL APPARATUS

All low voltage electrical apparatus shall be regarded as live until isolated from all possible sources of supply including backfeed from embedded generation and energy storage devices and proven de-energised, in accordance with approved procedures.

4.1 Work on or near de-energised low voltage exposed conductors

4.1.1 Principles

(a) Work on or near low voltage exposed conductors shall be in accordance with approved procedures.

(b) Where specified by the control authority, an access authority shall be issued for access to work on or near the exposed conductors.

(c) Before commencing work on or near de-energised low voltage exposed conductors, they shall—

(i) be identified as the conductors to be worked on;

(ii) be isolated; and

(iii) be proved de-energised in accordance with approved procedures.

(d) Control measures shall be taken to:

(i) minimise the risks from hazardous induced voltages or unknown supplies; and

(ii) prevent inadvertent contact with other live exposed conductors, earth or objects at different potential.

(e) Barriers shall be erected, where necessary, in accordance with approved procedures.

4.2 Work on or near live low voltage exposed conductors

4.2.1 Principles

(a) Work on or near live low voltage exposed conductors shall be carried out in accordance with approved procedures.

(b) Before commencing work on or near live low voltage exposed conductors they shall be identified as the conductors to be worked on.

(c) Control measures shall be applied, such as screening or other means to prevent inadvertent contact with other live low voltage exposed conductor or earth.

4.3 Work on or near low voltage cables

4.3.1 Principles

(a) Work on or near cables shall be in accordance with approved procedures.

(b) Work shall not commence unless the cable has been identified in accordance with approved procedures.

(c) Before commencing work on or near cables control measures shall be taken to identify and safeguard against the hazards that are present at the work area. These include, but are not limited to—

(i) live electrical apparatus;

(ii) transferred potentials;

(iii) the potential for faults on adjacent cables and joints; and

(iv) capacitive voltages.

4.4 Work on low voltage exposed conductors not electrically connected

4.4.1 Principles

(a) The requirements of Sections 4.1 and 4.2 of these Guidelines apply where:

(i) poles or structures carry an overhead line that is not electrically connected together with other live or de-energised overhead lines; or

(ii) an overhead line that is not electrically connected comes within the safe approach distances of other live or de-energised overhead lines.

(b) Where low voltage exposed conductors that are not electrically connected are subject to hazardous induced voltages or transferred earth potentials, approved procedures shall be applied to control the risks.

5 WORK ON MECHANICAL APPARATUS

Consistent with the principles in AS 4204 Safety of machinery, all mechanical apparatus shall be regarded as energised until isolated and de-energised in accordance with approved procedures.

5.1 Mechanical operating work

5.1.1 Principles

(a) Mechanical operating work shall only be carried out by an authorised person.

(b) Mechanical operating work shall be carried out at the direction of the control authority in accordance with approved procedures. (See Annex E – Methods of Isolating Mechanical Apparatus).

(c) In emergency circumstances involving danger to life or risk of damage to apparatus, mechanical operating work and/or other appropriate emergency operations shall be carried out in accordance with approved procedures provided the person carrying out the emergency operations considers it safe to do so. The control authority shall be advised of the emergency circumstances and of the emergency operations undertaken as soon as practicable.

(d) Mechanical apparatus shall not be energised or re-energised unless—

(i) all relevant access authorities are cancelled and all persons are clear;

(ii) it is in a state suitable for energisation;

(iii) all mechanical restraints, equipment, plant, tools and materials are removed as appropriate;

(iv) appropriate checks and tests are carried out to ensure apparatus is safe for service; and

(v) approval is given from the control authority to energise or re-energise.

5.2 Preparation of mechanical apparatus for work

5.2.1 Principles

(a) When work is to be performed on mechanical apparatus all materials, substances, agents or conditions that pose a risk to the health and safety of the persons required to work on the mechanical apparatus shall be isolated.

(b) Control measures taken to isolate mechanical apparatus shall:

(i) prevent the activation or energising of apparatus or services including secondary sources of energy that are likely to adversely cause the activation or energising of the mechanical apparatus;

(ii) ensure, if required, the mechanical apparatus is unwound, untensioned or drained, vented and depressurised;

(iii) prevent the introduction of materials or substances through equipment such as piping, ducts, vents, drains, conveyors, service pipes;

(iv) prevent the uncontrolled movement or rotation of the mechanical apparatus;

(v) ensure, where practicable, that the devices isolating the mechanical apparatus are tagged and secured; and

(vi) remain in place until all persons working under the access authority have signed off.

5.3 Authority for work on mechanical apparatus

5.3.1 Principles

(a) An access authority shall be issued before any work commences on mechanical apparatus except in accordance with approved procedures.

(b) An access authority for work on mechanical apparatus and an access authority for testing on the same mechanical apparatus shall not be on issue at the same time.

5.4 Testing of mechanical apparatus

5.4.1 Principle

Where the testing of mechanical apparatus poses a risk to the health and safety of any person an access authority for testing shall be issued.

5.5 Work on mechanical apparatus that is not connected to external energy sources

5.5.1 Principle

Where work is required on mechanical apparatus that is not connected to external energy sources and hazards exist from sources of stored energy, then control measures in accordance with approved procedures shall be applied.

Appendix A BARRIERS AND SIGNS

~~(Normative)~~

A1 GENERAL

There are generally two methods utilised for the erection of a *barrier* in the Electricity Supply Industry. The two methods are referred to as:

- *barrier* in; and
- *barrier* out.

These Guidelines recognise '*barrier* in' and '*barrier* out' as acceptable methods for the erection of a *barrier* (see Examples A, B and C below). There may be situations where one method is preferred to the other, which may be due, in part, to the configuration of the *apparatus* rendering the application of the other method inappropriate.

Where a *barrier* is to be erected, the *barrier* method used *should* achieve the best safety outcomes taking into account relevant hazards and associated risks.

Risk assessments *shall* be performed, where practicable, following inspection of the location of the work and persons authorised to erect *barriers should* have instruction, training and information provided on risk management.

A2 ERECTION OF BARRIERS AND SIGNS

When erecting a *barrier*, the following principles shall apply.

(a) *Barriers shall* be erected in accordance with the *control authority*'s *approved procedures*.

(b) *Barriers shall* be erected to guard against mistaken or inadvertent approach to, and contact with, nearby *apparatus* that could constitute a safety hazard to personnel.

(c) The *barrier(s) shall* be so arranged that the equipment to be worked on is accessible without interfering with or crossing over, or under, the *barrier*.

(d) Established *barriers shall* only be moved or re-arranged in accordance with *approved procedures*.

(e) Where it is possible to approach *near conductors* that *shall* be regarded as *live*, or rotating parts, signs *shall* be erected to indicate their presence (see Example E below).

(f) Additional signs *shall* be erected, as necessary, to identify any particular hazard or hazardous condition that is present.

In addition to the above principles, the following principle *should* apply.

(g) Where a *barrier* is to be erected the rope, tape, or alternative used for the *barrier should* be coloured yellow.

EXAMPLE A '*Barrier* in' method for the erection of a *barrier* in a *substation*

EXAMPLE B '*Barrier* out' method for the erection of a *barrier* on totally enclosed switchgear

EXAMPLE C '*Barrier* out' method for the erection of a *barrier* in a *substation*

SAMPLE HAZARDOUS CONDITION SIGNS

EXAMPLE D This sign *shall* be placed at locations to indicate *high voltage* testing is in progress

EXAMPLE E This sign *shall* be placed at locations to indicate that there are *conductors*, which should be regarded as *live* and from which persons need to maintain *safe approach distances*

EXAMPLE F This sign *shall* be placed at locations to indicate the presence of a *confined space* and the requirement for access to the *confined space*

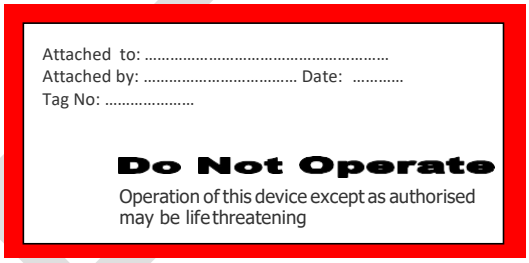
EXAMPLE G This sign *shall* be placed at locations to indicate the presence of overhead work. It *should* be accompanied, where necessary, by *barriers* or additional signs

APPENDIX B SAMPLE TAGS

~~(Informative)~~

DO NOT OPERATE TAG – This tag is used to warn that the operation of the device or equipment to which the tag is attached is likely to be life threatening.

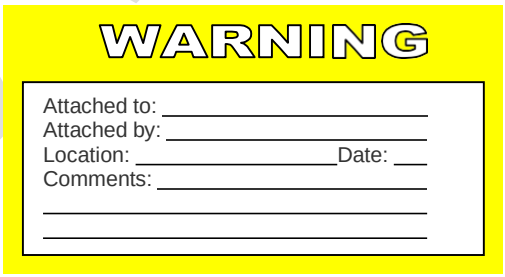
Front of tag



Rear of tag

HAZARDOUS CONDITION WARNING TAG – This tag is used to warn of a particular hazard or hazardous condition that is not likely to be life threatening.

Front of tag



Rear of tag

APPENDIX C LIST OF APPROVED PROCEDURES

[Editor's note – Appendix C being considered for removal]

~~(Informative)~~

The *approved procedures* listed below are referred to in these Guidelines as supplementing, where appropriate, the principles and responsibilities set out in this document. This list is not exclusive and other *approved procedures* may be required.

Application and removal of earthing and short-circuit equipment

Application of *barriers*

Authorisation of persons

Conduct of *electrical operating work*

Conduct of *mechanical operating work*

Control of induced voltages or transferred earth potential

Controlling hazardous situations, occurrences or effects Electrical testing

Identification and work on *cables*

Identification and work on *low voltage exposed conductors*

Identification of *electrical apparatus not electrically connected*

Identification of *overhead lines*

Inspection, maintenance and testing of equipment and tools

Operation of *apparatus* controlled by another *control authority*

Preparation, application and alteration of documented instructions Proving *de-energised electrical apparatus*

Request, issue, receipt, transfer, *suspension* and *cancellation of access authorities*

Use of *high voltage approved* equipment

Use of tags

APPENDIX D COMPETENCY STANDARDS

[Editor's note – Appendix D being considered for removal]

~~(Informative)~~

The following list of competencies is recommended for the application of the principles and responsibilities of these Guidelines.

a) Prepare requests to work

b) Prepare and check documented instructions

c) Prepare for access and restore mechanical apparatus Prepare for access and restore low voltage apparatus Prepare for access and restore high voltage apparatus Prove de-energised high voltage apparatus

d) Conduct earthing on high voltage apparatus

e) Issue, coordinate and cancel access authorities for mechanical apparatus Issue, coordinate and cancel access authorities for low voltage apparatus Issue, coordinate and cancel access authorities for high voltage apparatus Receive, coordinate and surrender access authorities for mechanical apparatus Receive, coordinate and surrender access authorities for low voltage apparatus

f) Receive, coordinate and surrender access authorities for high voltage apparatus

g) Work under access authorities for mechanical apparatus Work under access authorities for low voltage apparatus Work under access authorities for high voltage apparatus

APPENDIX E METHODS OF ISOLATING MECHANICAL APPARATUS

[Editor's note – this section may need to be comprehensively revised and aligned with AS 4204.]

~~(Informative)~~

The following material is intended place the principles contained in AS/NZS 4024.1201:2014 Safety of Machinery, General principles for design – Risk assessment and risk reduction S 6.3.5.4 *Measures for isolation and energy dissipation* within the overall context of safe access to mechanical apparatus in electricity networks.

E1 ISOLATION REQUIREMENTS

When persons are required to work on *mechanical apparatus* all materials, substances, agents or conditions harmful to persons *should* be *isolated* and rendered inoperable to prevent the activation or energisation of *mechanical apparatus* or services which could pose a risk to the health and safety to such persons.

E2 ISOLATION FACTORS

Isolation is a term, which describes the *control measures* used to prevent:

(a) the activation or energising of *apparatus* or services that have the potential to adversely cause the activation or energising of machinery, and unwind, untension, drain, vent, depressurise, etc, the *apparatus*;

(b) the introduction of materials or substances through equipment such as piping, ducts, vents, drains, conveyors, service pipes; and

(c) the movement or rotation of *apparatus*.

Isolation measures such as tagging and, where practicable, securing the isolation *should* be supervised or verified by the *authorised person in charge* or those persons having immediate control of the work. Isolation measures *should* not be removed until all persons who have worked on the *apparatus* have been notified that the work is complete and the isolation is to be removed.

E3 METHODS OF ISOLATION

The method of isolation of *mechanical apparatus should* be in accordance with one of the methods described below or by an *approved* alternative method affording an equivalent level of safety:

(a) removal of a valve, spool piece, an expansion joint in piping leading to, and as close as practicable to, the work and blanking or capping the open end of the piping. The blank or cap *should* be identified to indicate its purpose. Blanks or caps *should* be of a material that is compatible with the liquid, vapour or gas with which they are in contact. The material *should* also have sufficient strength to withstand the maximum operating conditions such as pressure, temperature and surges, which may occur in the piping; or

(b) insertion of a suitable full-pressure spade (blank) in piping between the flanges as close as practicable to the work. The full pressure spade (blank) *should* be identified to indicate its purpose; or

(c) isolation by means of closing, tagging and, where practicable, securing (or both), of valves in the piping associated with the *apparatus*. A drain valve between the two closed valves *should* also be tagged and, where practicable, secured (or both) as part of this method.

NOTE: Where no pressure indicators have been installed in blanked-off pipe sections, consideration *should* be given to the possibility of pressure build-up occurring during the blanked-off time

E4 METHODS OF ISOLATION FROM MOVING PARTS

Before work is permitted on any *mechanical apparatus* which has the potential to move, or in which agitators, fans or other moving parts that pose a risk to persons are present, the possibility of movement *should* be prevented. Isolation *procedures should* ensure that movement is prevented by the relevant method described below or by *approved* alternative methods affording an equivalent level of safety.

(a) Equipment or devices with stored energy, including hydraulic, pneumatic, electrical, chemical, mechanical, thermal or other types of energy, *should* be reduced to a zero energy state. Where shafts, agitators, blades and other moving equipment are involved, then the risk of their free movement *should* be taken into account, and *control measures* such as chocking, wedging, chaining or removal of these parts considered. A warning of the stored energy and its status at the time of commencement of work, such as charged or discharged, *should* be included on the *access authority*.

(b) Positive steps *should* be taken to achieve de-energisation, tagging and, where practicable, securing of machinery, mixers, agitators or other *apparatus* containing moving parts. This could require additional isolation, blocking or de-energising of the *mechanical apparatus* itself to guard against the release of stored energy. An example is the stored energy of springs. Such positive steps include:

(i) tagging and, where practicable, a means of securing *should* be placed on the open circuit breaker or open isolating switch *supplying* electric power to the *mechanical apparatus* with hazardous moving parts. When a lock is used, the key *should* be kept in the possession of the person placing the lock. Spare keys *should* not be accessible except for cases of emergency;

(ii) where a power source cannot be controlled readily or effectively, a belt or other mechanical linkage *should* be disconnected and tagged to indicate the belt or linkage *should* not be reconnected until all work on the *apparatus* has been completed. When the removal of electrical components, such as fuses, is used as a means of isolation, then the electrical component *should* be removed and the circuit tagged. Circuits *should* always be tested to ensure isolation is effective;

(iii) moveable components *should* be tagged and, where practicable, secured and switches, clutches or other controls *should* be tagged to indicate that the tags and securing devices *should* not be removed until the work has been completed; and

(iv) secondary control circuits *should* be *isolated* by the removal of fuses or links, or the opening of circuit breakers, where appropriate.

APPENDIX F SAMPLE ACCESS AUTHORITY

[Editor's note – to be revised in accordance with ENA members' current procedures]

(Informative)

Access Authority No:_____

1.Location:_____

2. *Apparatus* to which access is permitted:

_____

_____

3. Extent of access (and/or description of work):

_____

_____

_____

4. Points of isolation:

_____

_____

4.1 Additional *control measures*:

_____

_____

5. *Access authority earths* have been applied at:

A	E
B	F
C	G
D	H

6. Additional information:

_____

_____

_____

_____

_____

7. Issue of *access authority*:

-The *apparatus* as described above has been *isolated* and *do not operate tag*s applied.
-All relevant *electrical apparatus* has been proved *de-energised*, *earthed* and short-circuited.
-The *apparatus shall* remain in the condition until this *access authority* is cancelled.

Issued by:

Name: _____ Signed: _____ Time: _____ Date: _____

8. Receipt of *access authority*:
- I have confirmed that this *access authority* is appropriate for the work concerned.
- I understand the limits of the *access authority*, the precautions and *control measures* taken and the relevant warnings.
- I *shall* ensure all members of the working party understand the points of *isolation*, the limits of the *access authority* and the precautions taken.
- I *shall* ensure no member of the working party commences work until they have signed on the *access authority*.
- I am *authorised* by the *control authority* to receive this *access authority*.

Received by:
Name: _____ Signed: _____ Time: _____ Date: _____

9. Members of the working party

Sign on *access authority* - I understand the limits of access to the *apparatus*. - I understand and am satisfied with the *control measures* taken. - I understand and will comply with the safety directions given.				Sign off *access authority* - I have finished work on the *apparatus*. - I will now regard the *apparatus* as *live*.		
Signature	Print Name	Time	Date	Signature	Time	Date

OPTIONAL SECTIONS

Record of *working earth*s applied

Working Earth No.	Location	Applied By	Removed By
W1			
W2			
W3			
W4			

Transfer of *access authority*
- I have read and understand this *access authority*.
- I am taking responsibility as the *authorised person in charge* from the time of transfer shown below.

Received from Signature	Received by Print Name	Signature	Time	Date

Suspension of *access authority*
- All persons signed on this *access authority* have now signed off.
- The *apparatus* is/is not serviceable. Remarks: _____
- No work will recommence until permission has been received from the *control authority.*

_____ _____ _____
Signature Time Date

Resumption of work under *access Authority*
- I have received permission from the *control authority* to recommence work under this *access authority*.
- I have been advised of any alterations to, the limits, the *control measures* and any warnings or instructions applicable to this *access authority*.
- All persons signing back onto this *access authority* will be advised of the limits of this *access authority* and the *control measures* taken.
- No member of the working party will commence work until signed onto this *access authority*.

_____ _____ _____
Signature Time Date

10. *Surrender* of *access authority*

- All members of the working party have ceased work and signed off this *access authority*.
- All *working earths* and other *control measures* have been removed.
- The *apparatus* is/is not available for service. Remarks:_____
- I have advised the *control authority* that this *access authority* is now surrendered and may be cancelled.

_____	_____	_____
Signature	Time	Date

11. *Cancellation* of *access authority*

- All persons signed on the *access authority* have signed off.
- The *access authority* has been signed by the *authorised person in charge* to indicate that the *access authority* is surrendered.
- This *access authority* is now cancelled.

_____	_____	_____
Signature	Time	Date

APPENDIX G OPERATING PROTOCOLS BETWEEN CONTROL AUTHORITIES

G.1 Agreement to document operational protocols for safe access between interfacing control authorities

G1.1 Principles

(a) Connection agreements (or another contractual coordination instruments) between control authorities shall contain express terms to facilitate enduring operational agreements for interface switching and arrangements for safe access.

G1.2 Operational Protocols

(a) Control authorities shall co-design operating protocols for safe access in advance of commissioning new connections or as soon as practicable after.

(b) Operating protocols for the interface coordination of safe access shall use and align to this guideline.

(c) Operating protocols for the interface coordination of safe access shall be designed and commissioned as part of the apparatus design process.

(d) Operating protocols for the interface coordination of safe access shall include arrangements to maintain continuous capability to operate the protocol and for managing change of operational personnel and ownership of the control authority.

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