

Attachment: No. B:



SWC-HVOP Book No. xxxx

SYDNEY WATER CORPORATION

HIGH VOLTAGE OPERATING PROCEDURES

Fourth Edition

JUNE, 2003

(MAROON BOOK)

SYDNEY WATER CORPORATION

HIGH VOLTAGE OPERATING PROCEDURES

Preface to Fourth Edition

This is the Fourth Edition of the Sydney Water High Voltage Operating Procedures and replaces the 1993 Third Edition.

These High Voltage Operating Procedures are designed to ensure compliance with OHS&R requirements, relevant statutory regulations and Sydney Water Corporate Instructions.

These High Voltage Operating Procedures apply to all Employees associated with work on operating and maintaining High Voltage Electrical Apparatus within Sydney Water's Facilities. They are intended for use on Sydney Water's High Voltage Electrical Apparatus which includes up to 33,000 volts.

Sydney Water Corporation – Asset Management, controls the issuing of this handbook.

This copy is not to be reissued to any other person or copied. It is to be returned to the issuer when no longer required.

**Statement of High Voltage Authorisation of _____
by the Authorising Officer on behalf of the Employer.**

I have examined _____ and am satisfied that they have completed the required training, are deemed fit, have been instructed and have the knowledge required of an Employee who is to work in compliance with Sydney Water's High Voltage Operating Procedures.

I hereby authorise _____ to carry out the following activities on, and associated with, High Voltage Electrical Apparatus, and on or near High Voltage Exposed Conductors, in accordance with the High Voltage Operating Procedures:

1. As an Authorised Employee to work on High Voltage Electrical Apparatus and on or near High Voltage Exposed Conductors, under the supervision of the Authorised High Voltage Recipient for Access Permit for Work ie: Authorised to Work.
2. As an Authorised Employee to receive Access Permit to Work on or near High Voltage Electrical Apparatus or on or near High Voltage Exposed Conductors, ie: Authorised High Voltage Recipient for Access Permit for Work.
3. As an Authorised Employee to Test High Voltage Electrical Apparatus ie: Authorised High Voltage Recipient for Access Permit for Test.
4. As an Authorised Employee to carry out High Voltage Operating Work and issue Access Permits ie. Authorised High Voltage Operator.
5. As an Authorised Employee to write High Voltage Switching Instructions. ie Authorised High Voltage Switching Instruction Writing Officer
6. As an Authorised Employee to verify High Voltage Switching Instructions. ie Authorised High Voltage Switching Instruction Verifying Officer.

Note: The categories (1) to (6) above will be subject to the work detailed in written form on the following page (iii) of this preface.

STATEMENT OF HIGH VOLTAGE AUTHORISATION “CONTINUED”

_____ has provided evidence that they have sufficient experience/training to safely and competently carry out work (as specified below).

The following training has been identified to ensure they are able to carry out the work safely:

- | | |
|--------------------------------|--|
| Strike out
As
Applicable | <input type="checkbox"/> Safe Working Practices, Access Permit Issuer/Holder
<input type="checkbox"/> Resuscitation
<input type="checkbox"/> Release from Live Apparatus
<input type="checkbox"/> Rescue from Pole, Structure or Elevating Work Platform
<input type="checkbox"/> Rescue from a Confined Space |
|--------------------------------|--|

_____ is authorised to :

- | | |
|--------------------------------|---|
| Strike out
As
Applicable | <input type="checkbox"/> Work on or near High Voltage Equipment
<input type="checkbox"/> Receive Access Permits for Work
<input type="checkbox"/> Receive access permits for test
<input type="checkbox"/> Perform Operating Work and Issue Access Permits
<input type="checkbox"/> Write Switching Instructions
<input type="checkbox"/> Verify Switching Instruction |
|--------------------------------|---|

in accordance with Sydney Water High Voltage Operating Procedures.

Work is to be performed only at (location) _____

And covers (specify work to be done) _____

on ____/____/____ to ____/____/____ inclusive.

(The Validity of this Authorisation will expire in twelve (12) months).

This High Voltage Authorisation expires on ____/____/____

Signed:

Authorising Officer
For Employer (Sydney Water Corporation)

Employee

STATEMENT OF CONFORMANCE BY EMPLOYEE

I, _____

- Have read and been instructed in the High Voltage Operating Procedures,
- Have received the training appropriate for an Employee who is to work in compliance with the High Voltage Operating Procedures,
- Am physically fit to perform the duties as outline in the High Voltage Operating Procedures,
- Have successfully completed a course in Safe Work Practices,
- Have received appropriate instructions for Resuscitation,
- Have received appropriate instructions for Releasing a Person from Live Electrical Apparatus,
- Have received appropriate instructions for Pole Top Rescue and Elevating Work Platform Escape,
- Have received appropriate Confined Space Training,
- State that I understand and will comply with the requirements of these High Voltage Operating Procedures.

Signed: _____

Date: ____ / ____ / ____

Note: The Employee is required to cross out those items that are not applicable.

**TRAINING RECORDS
OF**

To be completed by the Authorising Officer:

VALIDATION/RE-VALIDATION OF TRAINING

TRAINING DETAILS							Authorising Officer on behalf of Sydney Water Corporation	
(1) Hazard Identification and Risk Assessment (HIDRA)	(2) Resuscitation	(3) Release from contact with live apparatus	(4) Pole top rescue and elevating work platform escape	(5) Confined Space Training and Rescue Procedures	(6) Knowledge of HVOP and Code of Practice	(7) HVOP Approval Expiry Date	Authorising Officer Signature	Signed Date

Dates of training are to be inserted in the table and initialled by the Authorising Officer. Retraining must take place within 12 months of the dates shown above for Re-validation of Authorisation to be approved.

SYDNEY WATER CORPORATION AUTHORISATION OF RECORDS OF

To be completed by Authorising Officer:

VALIDATION/RE-VALIDATION OF STATEMENT OF AUTHORISATION

Category of Authorisation						Authorising Officer on behalf of Sydney Water Corporation	
(1) Authorised to Work	(2) Authorised Recipient for Access Permit for Work	(3) Authorised Recipient for Access Permit for Test	(4) Authorised High Voltage Operator	(5) Authorised to Write H.V. Switching Instructions	(6) Authorised to Verify H.V. Switching Instructions	Signed	Issue Date

Please initial in the box that is to be Validated/Re-validated and put a cross in any box that is invalid. Validation will expire 12 months after the date of signing by the Authorising Officer.

SYDNEY WATER CORPORATION AUTHORISATION OF RECORDS OF

To be completed by the Authorising Officer:

VALIDATION/RE-VALIDATION OF STATEMENT OF APPROVAL

Category of Approval						Authorising Officer on behalf of Sydney Water Corporation	
(1) Apprentice Electrician in Training	(2) Electrician in Training	(3) Member of a Working Team	(4) Member of a Testing Team	(5) Other Specify	(6) Other Specify	Authorising Officer Signature	Signed Date

Dates of training are to be inserted in the table and initialled by the Authorising Officer. Retraining must take place within 12 months of the dates shown above for Re-validation of Authorisation to be approved.

HIGH VOLTAGE OPERATING PROCEDURES CONTENTS

Preface		Page No
Preface to Fourth Edition		i
Statement of High Voltage Authorisation		ii
Statement of High Voltage Authorisation “continued”		iii
Statement of Conformance by Employee		iv
Training Records		I
Sydney Water Corporation Statement of Authorisation Records		II
Sydney Water Corporation Statement of Approval Records		III
Section		Page No
1	Introduction	1
2	Definitions	2
3	General Policies	9
4	System Diagrams	12
5	Switchgear Numbering System	13
6	Minimum Safe Working Database	14
7	Earthing	15
8	Danger Tags	16
9	Tape Barriers	17
10	Methods of Making Safe	18
11	Commissioning Newly Installed and / or Modified Electrical Apparatus	20
12	Documents for De-Energisation and Re-Energisation of Electrical Apparatus	22
13	Switching Operations in an Emergency	24
14	Switching Operations outside Normal Working Hours	25
15	Access Permits	26
16	Duties of the High Voltage Operator with regard to Access Permits	29
17	Duties of the High Voltage Recipient with regard to Access Permits	31
18	Place of Issue of Access Permit	35
19	Routine Maintenance under Access Permit	36
20	Work under Access continuing from Day to Day	37
21	High Voltage Recipient of Access Permit not reporting for Work	38
22	Cancellation of Access Permits for Work or Test	39
23	Work Exempted from Access Permit Regulations	40
24	Use of Safety Equipment and Other Tools	41
25	Accident Reporting and Investigation	42

APPENDICES

Appendix	Item Description	Page No.
A	Danger Tag	A
B	Declaration to be signed before Working on Overhead Lines	B
C	Declaration to be signed before assisting in work on Overhead Lines	C
D	Work Site Hazard and Risk Control Assessment Form	D
E	Operating Agreement Form	E
F	Request for Switching Operations and/or Access Permit	F
G	Switching Instructions	G
H	Access Permit for Work	H
I	Access Permit for Test	I
J	Notes	J

SECTION 1 – INTRODUCTION

- 1.1 These High Voltage Operating Procedures are intended as an instruction for the operation and maintenance of Sydney Water's High Voltage Systems. They have been compiled with attention to the Safety of Employees, continuity of supply and protection of High Voltage Electrical Apparatus.
- 1.2 The Electricity Council of New South Wales 1991, Reprinted May 1993: The Industry Safety Standards Committee Series of Guides: primarily, The Guide to Safe Electrical Work Procedures – EC16, Guide to Working in Electrical Stations - EC17 and Guide to Training of Electricity Supply Workers, (which are currently being replaced by the ESAA NENS NATIONAL ELECTRICITY NETWORK SAFETY CODES), have been incorporated in these High Voltage Operating Procedures
- 1.3 All Employees, prior to commencing work on or near High Voltage Electrical Apparatus (refer to Section 6 page 20) in High Voltage Areas, will be trained and issued with a copy of these High Voltage Operating Procedures. They must be 'Authorised' or 'Approved' in writing and must adhere to these procedures.
- 1.4 All Employees working in High Voltage Areas shall only work in the designated areas as identified on the Access Permit.
- 1.5 Employees or visitors planning to enter High Voltage areas as visitors (for other than High Voltage work) shall advise the respective Owner Representative of their purpose, including duration of entry. The Owner Representative and/or a nominated Authorised High Voltage Operator. will approve and determine the safety procedures necessary for their entry, and ensure that the visitors follow instructions.
- 1.6 **ALL ELECTRICAL APPARATUS SHALL BE REGARDED AS BEING ALIVE UNTIL ISOLATED AND PROVED DE-ENERGISED.**
- 1.7 **ALL EMPLOYEES ENGAGED IN WORK ON HIGH VOLTAGE ELECTRICAL APPARATUS OR ON OR NEAR HIGH VOLTAGE EXPOSED CONDUCTORS MUST NOT COMMENCE WORK UNTIL AN ACCESS PERMIT FOR WORK HAS BEEN ISSUED.**
- 1.8 Unless otherwise stated, all Electrical Apparatus referred to in these Procedures shall be regarded as being High Voltage.

Notes:

- (1) These High Voltage Operating Procedures are intended for use on Sydney Water's High Voltage Electrical Systems, which includes up to 33,000 volts.
- (2) They do not negate the need to comply with Sydney Water Corporation Safety Procedures for the area where the visit and/or work are to be carried out.

SECTION 2 – DEFINITIONS

Throughout these High Voltage Operating Procedures, the following shall apply.

- 2.1 ACCESS PERMIT** is a written authority issued by an Authorised High Voltage Operator to an Authorised High Voltage Recipient permitting access for work or test in High Voltage areas and High Voltage and Low Voltage combined locations. The permit must clearly indicate:
- a) the name of the Authorised High Voltage Recipient
 - b) the Electrical Apparatus to be worked on,
 - c) the work to be executed and the date of permit issue,
 - d) the isolation and earthing points,
 - e) the limits of access,
 - f) any related permits
- 2.2 ALIVE (LIVE)** means connected to a source of electrical supply or subject to hazardous induced or capacitive voltages. All Electrical Apparatus shall be regarded as being alive until proved de-energised.
- 2.3 ADDITIVE EARTH** means a separate earthing and short circuit device to be fitted on switchgear and is used to earth Electrical Apparatus. It shall be applied and removed only by an Authorised High Voltage Operator.
- 2.4 APPROVED** means an Employee who is approved in writing to be a member of a High Voltage Work Team or a High Voltage Testing Team.
The Employee may be:
- (a) an apprentice electrician in High Voltage training, or
 - (b) an electrician in High Voltage training, or
 - (c) an Employee assisting in carrying out work or testing on Electrical Apparatus and/or electrical overhead lines, or
 - (d) an Employee carrying out non Electrical Apparatus work in High Voltage areas
and/or High Voltage and Low Voltage (combined) locations.
- 2.5 AUTHORISED** means Authorised in writing by Sydney Water Corporation.
- 2.6 AUTHORISING OFFICER** means a Sydney Water Corporation Officer appointed from Sydney Water High Voltage Electrical Apparatus owners. This Officer shall authorise and revalidate authorisation of Employees who work in High Voltage areas, and monitor compliance to these procedures and relevant Electricity Association of N.S.W publications.

There shall be only one Authorising Officer at any one time.

- 2.7 AUTHORISED HIGH VOLTAGE OPERATOR** means an Employee who is authorised in writing by the Authorising Officer to carry out High Voltage operating work, to issue Access Permits for Work and Access Permits for Test.
- 2.8 AUTHORISED HIGH VOLTAGE RECIPIENT FOR ACCESS PERMIT FOR WORK** means any Employee who is authorised in writing by the Authorising Officer to received Access Permits for Work and to work on High Voltage Electrical Apparatus. The authorisation may be limited to the receipt of Permits for specific apparatus and specific locations.
- 2.9 AUTHORISED HIGH VOLTAGE RECIPIENT FOR ACCESS PERMIT FOR TEST**, means any Employee who is authorised in writing by the Authorising Officer to received Access Permits for Test and to carry out tests on High Voltage Electrical Apparatus.
- 2.10 AUTHORISED HIGH VOLTAGE SWITCHING INSTRUCTION WRITING OFFICER** means an Employee, who is authorised in writing by the Authorising Officer, to be responsible to provide support services to field High Voltage activities, including the writing of High Voltage Switching Instructions.
- Note: The Authorised Switching Instruction Writing Officer, even if Authorised, cannot be the Authorised High Voltage Operator or the Authorised High Voltage Recipient for Access Permit for Work in relation to any work or test where that officer has written the Switching Instructions (Except in emergency circumstances).**
- 2.11 AUTHORISED SWITCHING INSTRUCTION VERIFYING OFFICER** means an Employee, who is authorised in writing by the Authorising Officer, to be responsible to provide support services to field High Voltage activities, including the verifying or writing of High Voltage Switching Instructions.
- Note: The Authorised Switching Instruction Verifying Officer, even if authorised, cannot be the Authorised High Voltage Operator or the Authorised High Voltage Recipient for Access Permit for work or test in relation to any work where that Officer has verified or written the switching instructions. The Verifying Officer cannot verify Switching Instructions written by themself (Except in emergency circumstances) .**
- 2.12 AUTHORISED TO WORK** means an Employee who is authorised in writing by the Authorising Officer, to carry out work on High Voltage Electrical Apparatus or on or near exposed conductors under the supervision of the Authorised High Voltage Recipient for Access Permit for Work.

- 2.13 CABLE** means an insulated electrical conductor or two (2) or more such conductors laid together, whether with or without fillings, reinforcements or protective coverings.
- 2.14 CONTRACTOR** means the Employee or corporate body whose tender to execute the work under a Contract has been accepted by Sydney Water Corporation.
- 2.15 DANGER TAGS** are white cardboard or similar danger labels attached to the operating mechanism of switchgear and/or Electrical Apparatus under access or taken out of service.
- 2.16 DE-ENERGISED** means not connected, directly or indirectly, to a source of electrical supply.
- 2.17 DISCONNECTED** means physically removed (eg: unbolted) from all sources of supply.
- 2.18 EARTHED** means electrically connected to and at the same potential as the general mass of earth, in such a manner as to ensure at all times an immediate discharge of electrical energy. Unless otherwise specified, all references to “earthed” in these procedures means earthed and short circuited.
- 2.19 ELECTRICAL APPARATUS** means any electrical equipment. For the purpose of these procedures electrical equipment shall mean any combination of cables, busbars, overhead conductors, switchgear, circuit breakers, transformers, starters, capacitors, motors or other electrical equipment of which High Voltage and/or low voltage conductors form an integral part.
- 2.20 ELECTRICAL SUPERVISOR** means an Employee who normally supervises the work of High Voltage Authorised or Approved Employees.
- 2.21 EMERGENCY** is defined as a High Voltage Electrical Apparatus breakdown which is:
- (a) a life threatening situation; or
 - (b) a situation which places the facility in imminent breach of licence, or
 - (c) a situation which could cause extensive damage to, or catastrophic failure of, critical plant and/or equipment.
- 2.22 EMPLOYEE** means any person in the employment of Sydney Water, including Contractors and Consultants, who is engaged in the design, construction, operation and maintenance of Electrical Apparatus owned and operated by Sydney Water Corporation.
- 2.23 EMPLOYER** for the purpose of these High Voltage Operating Procedures means Sydney Water Corporation.

- 2.24 ENCLOSED** means guarded by a fixed cover.
- 2.25 ENERGISED** means electrically connected to a source of supply.
- 2.26 EXPOSED CONDUCTOR** means an electrical conductor that is not effectively guarded by a fixed cover or adequately insulated as defined under a relevant Australian Standard.
- 2.27 HIGH VOLTAGE** means a difference of potential normally existing between conductors and between conductors and earth exceeding 1000 volts alternating current or exceeding 1500 volts direct current.
- 2.28 HIGH VOLTAGE AREA** means High Voltage Switch Room or Transformer Yard housing only High Voltage Electrical Apparatus and its associated equipment.
- 2.29 HIGH VOLTAGE AND HIGH VOLTAGE COMBINED LOCATIONS** are locations housing both High Voltage and Low Voltage Electrical Apparatus.
- 2.30 HIGH VOLTAGE SWITCH** is a switch rated for High Voltage operation, forming part of a High Voltage system, and numbered in accordance with Section 5.
- 2.31 HIGH VOLTAGE SWITCHING TEAM** is a minimum of two Authorised High Voltage Operators who form a team to carry out High Voltage Operating Work Except in the case of an Emergency where at least one Authorised High Voltage Operator and one Authorised High Voltage Employee who are familiar with the system form a team to carry out High Voltage Operating Work
- 2.32 HIGH VOLTAGE TESTING TEAM** is two or more Employees who form a team to carry out High Voltage Testing on Electrical Apparatus. At least one member of the team must be an Authorised High Voltage Recipient to Test and at least one member Authorised to Work on Electrical Apparatus. All members of the team must be either Authorised or Approved.
- 2.33 HIGH VOLTAGE WORK TEAM** is two or more Employees who form a team to carry out work on High Voltage Electrical Apparatus. At least one member of the team must be an Authorised High Voltage Recipient for Work and at least one member Authorised to Work on Electrical Apparatus. All members of the team must be Authorised or Approved.
- 2.34 HIGH VOLTAGE SYSTEM** is all of Sydney Water's separate High Voltage installations used for the distribution and utilisation of electricity.
- 2.35 INTEGRAL EARTH** means an earthing feature built into switchgear.

- 2.36 ISOLATED** means not connected to any possible source of electrical energy, that is, isolated by the opening of switches, withdrawal of circuit breakers, removal of fuses or links or connections and the like, thus rendering the Electrical Apparatus incapable of being made Alive unintentionally.
- 2.37 LINK STICK** means an approved insulated rod provided specifically for switching and replacing fuses on switchgear.
- 2.38 LIVE see ALIVE**
- 2.39 LOW VOLTAGE** means a difference of potential normally existing between conductors, and between conductors and earth, exceeding 32 volts alternating current or 115 volts direct current, but not exceeding 1000 volts alternating current or 1500 volts direct current.
- 2.40 MAKE SAFE** means preparing Electrical Apparatus for access by performing the following procedures.

Make Safe procedures for interlocking/combined (keyed) switches only:

- a) Isolate;
- b) Prove de-energised (dead);
- c) Earth;
- d) Padlock all operating mechanisms;
- e) Attach danger tag;
- f) Erect tape barriers.

These steps shall be carried out as a continuous process without interruption.

- 2.41 NEAR** means the proximity to an exposed conductor, where during the course of work;
- a) there is a reasonable possibility of an Employee's body, or
 - b) any object which the Employee may be carrying, or
 - c) any object which the Employee may be carrying or touching,

that is not designed for use on live conductors of the same voltage, coming closer than the safe working distance for the voltage concerned. (Refer to Section 6.)

- 2.42. NETWORK HIGH VOLTAGE OPERATOR** means any person or organisation engaged in the supply of electricity to the public or in the generation of electricity for supply directly or indirectly to the public, whether by virtue of any statute or any franchise agreement under any Act or otherwise.
- 2.43 OPERATING AGREEMENT (OA) or HIGH VOLTAGE OUTAGE (HVO)** means a printed form in which an undertaking is given, by signatures of an Authorised High Voltage Operator and a Distributing Authority Representative.

It specifies what Electrical Apparatus will remain in a designated state until the Agreement/Outage is cancelled by the signing of **both parties**.

- 2.44 OPERATING WORK** means work involving the operation of switches, the opening or closing of links or other connections.
Also the removal or replacement of fuses, proving that Electrical Apparatus is de-energised, isolated and/or earthing of Electrical Apparatus.
- 2.45 PERMIT ENVELOPE** is a clear plastic envelope provided for the safe keeping of Access Permits, Switching Instructions, etc., whilst Electrical Apparatus are under access.
- 2.46 PHASING (PHASED)** means a test to determine whether energised conductors may be paralleled.
- 2.47 PORTABLE EARTHS** are earthing and short-circuiting devices that are used to earth Electrical Apparatus. They may be working earths or other equipment consisting of insulated flexible cables and clamps and, if necessary, suitable insulated handles or sticks. The devices shall have a minimum copper cross sectional area of 35mm².
- 2.48 PREVENTIVE MAINTENANCE:** The maintenance carried out at predetermined intervals or corresponding to prescribed criteria and intended to reduce the probability of failure or the performance delegated of an asset.
- 2.49 PROVE DE-ENERGISED** means establishing that a conductor is de-energised, with no potential difference to earth, by testing with a High Voltage testing device, eg; a Modiwark or an Overhead Line Tester.
- 2.50 SERVICE PROVIDER** means any Employee or organisation that is engaged in the design, construction, operation and/or maintenance of High Voltage equipment.
- 2.51 SYDNEY WATER** means Sydney Water Corporation.
- 2.52 SYSTEM DIAGRAM** is a single line diagram representing a Sydney Water High Voltage electrical installation. The diagram has been specifically drawn for the purposes of High Voltage switching and has been reviewed, approved and issued by the Authorising Officer.
- 2.53 SWITCHING INSTRUCTION** is defined as “a written operating instruction detailing the required change in status of each switch, and the sequence of switching, to be carried out during a switching operation” and written on Sydney Water’s Switching Instruction form (blue).
- 2.54 SWITCHING INSTRUCTION - FORMAL** is defined as a **SWITCHING INSTRUCTION** (Refer to 2.52) prepared by an Authorised Switching

Instruction Writing Officer, written on Sydney Water Switching Instruction form and verified by an Authorised Switching Instruction Verifying Officer for:

- (a) all planned preventive and corrective maintenance work;
- (b) all breakdown non-emergency maintenance work in normal working hours;
- (c) switching to be carried out in conjunction with Electrical Distributing Authorities;
- (d) a site specific instruction for the isolation of one Electrical Apparatus

2.55 SWITCHING INSTRUCTION - SPECIAL is defined as a **SWITCHING INSTRUCTION** (Refer to 2.52) jointly prepared and completed for:

- (a) all work outside normal working hours (Section 14.1) where there is no Switching Instruction - Formal; by two Authorised High Voltage Operators
- (b) all cases of an emergency (Section 2.21 and 13.3). by a minim of one Authorised High Voltage Operator and one Authorised High Voltage Employee

2.56 TAPE BARRIER means a temporary barricade erected with fabric or plastic tape to indicate live Electrical Apparatus, or a restricted area.

2.57 WORKING EARTHS are portable earthing devices applied on overhead lines adjacent to the work site, which are additional to access permit earths. These devices shall have a minimum copper cross sectional area of 35mm².

SECTION 3 – GENERAL POLICIES

3.1 Work shall not be permitted on any Electrical Apparatus until an Access Permit to work or test has been issued.

3.2 ENTRY TO WORK IN HIGH VOLTAGE AREAS shall be permitted only to Employees listed on the Access Permit.

3.3 QUALIFICATIONS TO ENTER ELECTRICAL STATIONS

A person must not enter High Voltage areas unless authorised by the Owner Representative.

A person must not enter areas within an electrical station where there are live exposed conductors unless the person:

- a) is authorised to enter that area, and has normal duties which require entry into the area, or
- b) has been specifically instructed by an Authorised Employee to enter the area, and:
 - i) has been clearly instructed, on the site, as to the limits of the areas that may be entered,
 - ii) The dangers existing, and
 - iii) the precautions that must be observed, or
- c) Has been specifically instructed by an Authorised Employee to enter the area and is accompanied by an Authorised Employee who is capable, in an emergency, of
 - i) de-energising the appropriate Electrical Apparatus and carrying out rescue and
 - ii) resuscitation operations.In addition, the person must
 - i) Comply with any instructions concerning safety given by the accompanying Authorised Employee, and
 - ii) Be made aware of the dangers existing.

3.4 ENTRY TO HIGH VOLTAGE AND LOW VOLTAGE combined LOCATIONS is permitted to non-electrical Employees provided that they will not work near an exposed conductor, will not operate High Voltage switches and/or High Voltage circuit breakers and only carry out their normal duties, as detailed in the Work Instructions

3.5 LIVE WORK. An Employee shall not attempt work on live High Voltage Electrical Apparatus.

3.6 NUMBER OF EMPLOYEES TO WORK UNDER ACCESS PERMIT OR CONDUCT SWITCHING OPERATIONS. No less than **Two Authorised Employees** shall work on Electrical Apparatus under an Access permit or conduct switching operations (to be read in conjunction with 2.10, 2.11, 2.21 and 3.9.1).

3.7 CONNECTION OF NEW OR REPAIRED ELECTRICAL APPARATUS TO SYDNEY WATER'S SYSTEMS. Before any new, repaired or relocated Electrical Apparatus is connected to Sydney Water's system, it must be subjected to:

- a) High Voltage insulation test;
- b) High Voltage pressure test;
- c) Phasing, if required.

The test results are to be made available to the Network High Voltage Operator. in accordance with any established agreements.

3.8 Prior to Authorisation of an Employee as an Authorised High Voltage Operator., Authorised to Work or Authorised High Voltage Recipient for Work, for work on overhead lines, the Employee shall complete the Declaration to be signed (Appendix B).

3.9 OPERATION OF HIGH VOLTAGE SWITCHES AND CIRCUIT BREAKERS

3.9.1 Only Authorised High Voltage Operators shall operate switches and circuit breakers. (Operating in an emergency is the only exception).

3.9.2 Switches and circuit breakers, which are shown on System Diagrams as being normally open (N/O), shall remain open under normal service operating conditions.

Similarly, switches and circuit breakers, which are shown on System Diagrams as normally closed (N/C), shall remain closed under normal service operating conditions.

3.9.3 Only switchgear designed for the purpose shall be used for breaking load current.

3.9.4 Switches and circuit breakers shall be operated with a single sharp continuous action.

3.9.5 Before and after switches or circuit breakers are operated, all indicating devices must be observed to ensure that the devices are indicating the correct open or closed position.

- 3.9.6 Links shall only be operated off load.
- 3.9.7 Extreme care shall be taken before earthing switchgear or circuit breakers fitted with integral earths as it is possible on most apparatus to earth a live incoming supply.
- 3.9.8 Extreme care shall be taken before closing switchgear or circuit breakers on a feeder or ring-main, as it is possible that the remote end is earthed.
- 3.9.9 Stand-by feeders, identified as N/O on System Diagrams, shall be operated only after agreement with the Network High Voltage Operator.

3.10 ENERGISATION OF STANDBY TRANSFORMERS

Stand-by transformers and associated cables shall remain energised where practicable.

3.11 LIGHTNING

The hazardous effects of the presence of lightning on or around electrical works must be considered before commencing work on electrical equipment. This particularly applies where overhead lines form part of the system.

3.12 FIRE BANS

No electrical equipment shall be re-energised following an unplanned outage during total fire ban periods, where the electrical equipment or part of the electrical equipment to be re-energised is located within the total fire ban area.

Where the electrical equipment or part of the equipment to be re-energised is located within the total fire ban area, action is to be taken to patrol, inspect and confirm the condition of the electrical equipment.

The electrical equipment shall only be re-energised after its condition has been approved for normal operation.

SECTION 4 – SYSTEM DIAGRAMS

- 4.1** System Diagrams, shown in single line format are drawn for each High Voltage Installation . Defined symbols are used for High Voltage Equipment, earths, etc. Where back feeds are possible with parallel transformers via a low voltage bus, then the low voltage main and busbar switches are also included in the diagram.
- 4.2** System Diagrams may NOT indicate the actual service switch positions. The Authorised High Voltage Operator must check and confirm the arrangement as shown in the System Diagrams before commencing any operating work. In case of doubt, stop the operating work and seek clarification from the Authorised Employee who wrote the High Voltage Switching Instructions or Authorised Employee who verified the High Voltage Switching Instructions.
- 4.3** To ensure safety of Employees and equipment, system diagrams shall depict the systems as con-figured and as installed.
- 4.4** Each High Voltage Installation shall have an up to date system diagram prominently displayed on an internal wall of the High Voltage switch room/area.
- 4.5** Any modification to the High Voltage system shall be depicted in the system diagram without delay.
- 4.6** All amendments to system diagrams shall be recorded, approved, signed, dated and issued by the Authorising Officer.

SECTION 5 – SWITCHGEAR NUMBERING SYSTEM

- 5.1 A numbering system exists on all Sydney Water's High Voltage and on some Low Voltage switchgear for purposes of identification.
- 5.2 Low Voltage switchgear is numbered where a backfeed could occur.
- 5.3 Each switchgear number consists of four or five digits.
- 5.4 The first digit indicates the system voltage at which the apparatus operates, as follows:

First Digit	System Voltage
1.	Up to and including 1,000 volts
2.	Above 1,000 volts but not exceeding 3,300 volts
3.	Above 3,300 volts but not exceeding 5,000 volts
4.	Above 5,000 volts but not exceeding 6,600 volts
5.	Above 6,600 volts but not exceeding 11,000 volts
6.	Above 11,000 volts but not exceeding 33,000 volts
7.	Not allocated
8.	Not allocated
9.	Not owned by Sydney Water

The second, third, fourth and fifth digits are allocated in numerical sequence up to –999 or - 9999.

Note: These High Voltage Operating Procedures are intended for use on Sydney Water's existing High Voltage Electrical Apparatus, which includes up to 33,000 volts.

SECTION 6 – MINIMUM SAFE WORKING DISTANCES

- 6.1 All Electrical Apparatus and conductors shall be regarded as being alive until proven de-energised.**
- 6.2** When work is carried out near live exposed High Voltage Electrical Apparatus and conductors, members of the Working Team must not approach or allow any object or tool to come within the safe working distances indicated below, except for equipment rated and provided specifically for live testing or operating.

Nominal System Voltage	Safe Working Distance
Up to and including 1,000 volts	500mm
Above 1,000 volts but not exceeding 11,000 volts	700mm
Above 11,000 volts but not exceeding 66,000 volts	1000mm
Above 66,000 volts but not exceeding 132,000 volts	1500mm
Above 132,000 volts but not exceeding 220,000 volts	2500mm
Above 220,000 volts but not exceeding 330,000 volts	3000mm
Above 330,000 volts	4000mm

- 6.3** If work is necessary within the safe working distances, then the live exposed conductors must be isolated and earthed and an Access Permit must be issued. Alternatively, secure insulating screens shall be erected around the exposed conductors.

Note: These High Voltage Operating Procedures are intended for use on Sydney Water's existing High Voltage Electrical Apparatus, which includes up to 33,000 volts.

SECTION 7 – EARTHING

- 7.1** Electrical Apparatus shall not be worked on until it has been isolated, proven de-energised or dead, earthed and short circuited as close as practicable to the work-site. Only earthing equipment specially provided for the purpose shall be used.
- 7.2** Direct earthing shall be used. Fuses shall not form part of the earthing circuits.
- 7.3** Earthing equipment shall be applied by first connecting to earth before connecting to Electrical Apparatus. The earthing equipment shall remain connected for the duration of work (except that earthing equipment can be removed for the application of test voltages). At the completion of the work, earth equipment shall be removed by first disconnecting it from Electrical Apparatus and then disconnecting it from earth.

7.4 EARTHING OF OVERHEAD LINES

Earthing and short-circuiting of overhead lines shall be effected at a place which, where practicable, is visible from the work site and located between the point of isolation and the work site. Such earthing shall be effected at two points on the line, one on each side of the work site, where possible.

7.5 EARTHING OF ELECTRICAL APPARATUS OTHER THAN OVERHEAD LINES

Earthing equipment shall be connected between the point of isolation and Electrical Apparatus to be worked on.

Earthing of Electrical Apparatus, shall be effected by one or more of the following methods:

- (a) Integral earthing on switchgear and/or circuit breakers;
- (b) Additive earthing applied to switchgear and/or circuit breakers;
- (c) Portable earthing leads applied to Electrical Apparatus.

Integral and additive earths shall be capable of being applied to either the busbar or circuit side of switchgear.

Earths need not be applied for work on draw-out type of equipment when it is withdrawn from the “service” position.

SECTION 8 – DANGER TAGS

- 8.1** White “**Danger – This Apparatus Must Not Be Operated**” tags shall be attached to the operating handle of High Voltage switchgear which isolates Electrical Apparatus under Access or to unserviceable apparatus. Tags are a warning that switchgear **MUST NOT** be operated.
- 8.2** The following information must be recorded on the reverse side of the tag: -
- a) Switching Instruction Number,
 - b) Remarks and reasons for switching,
 - c) Authorised High Voltage Operator’s name (printed for legibility),
 - d) Authorised High Voltage Operator’s contact telephone number,
 - e) Authorised High Voltage Operator’s signature,
 - f) Date.
- 8.3** Danger Tags shall remain attached until removed by an Authorised High Voltage Operator at the completion of the work.
- 8.4** Tags displayed outdoors shall be enclosed in weatherproof plastic envelopes.
- 8.5** Refer to Appendix A for details of the tag to be used on Sydney Water’s installations.

SECTION 9 – TAPE BARRIERS

9.1 TAPE BARRIERS FOR WORK

Black and Yellow tape shall be used by Authorised High Voltage Operators to erect a barrier between live Electrical Apparatus and Electrical Apparatus which has been isolated and made safe in preparation for work. The tape is a warning to Employees against entering the live and/or restricted areas.

The tape shall be so arranged that the Electrical Apparatus to be worked on is accessible without interfering with the tape, or stepping over or under the tape, and to indicate a clearly defined path of access for Employees to the working area.

Unauthorised Employees shall not **enter the live and/or restricted areas or pass over or under or interfere with** any tape barriers.

9.2 TAPE BARRIERS FOR TEST

Tape barriers must be erected by Testing Employees to indicate the boundaries of their Test Equipment and Electrical Apparatus under test.

When erecting tape barriers the entrance point/s shall be identified by opening/s.

SECTION 10 – METHODS OF MAKING SAFE

10.1 Before any High Voltage operating work is commenced, the process of making safe must include a written risk assessment. This assessment must consider all hazards associated in switching, accessing and working on the High Voltage apparatus. Forms available for this purpose are Sydney Water's form No. 2-503 (June 1996) "Work Site Hazard and Risk Control Assessment" (see Appendix D) or a similar form provided by the service provider or the owner of the facility.

10.2 As defined in Section 2, "Make Safe" requires a specified sequence to be performed on Electrical Apparatus by the Authorised High Voltage Operator. The following examples demonstrate how these defined procedures are carried out in specific instances.

10.3 ELECTRICAL APPARATUS WITH POTENTIAL DANGER CAUSED BY INDUCED VOLTAGES FROM ADJACENT OVERHEAD LINE(S)

- (a) Isolation of the adjacent overhead lines from all sources of supply, including low voltage supplies if back-feed is possible.
- (b) Padlock and danger tag isolators for the above overhead lines in off positions.
- (c) Isolation of the Electrical Apparatus to be worked on from all sources of supply.
- (d) Padlock and danger tag shutters and/or covers to prevent access to live parts.
- (e) Prove de-energised, danger tag and earth on both sides of the Electrical Apparatus to be worked on.
- (f) Padlock the earthing mechanisms in closed positions,
- (g) If earthing is out of sight at the work location, positively identify the Electrical Apparatus, prove de-energised and apply portable earths within sight distances.

10.4 ELECTRICAL APPARATUS WITH POTENTIAL DANGER CAUSED BY TRANSFERRED EARTH POTENTIALS

- (a) Isolate the Electrical Apparatus from all sources of supply.
- (b) Padlock and danger tag adjacent shutters and/or covers accessible to live parts
- (c) Prove de-energised, danger tag and earth on both sides the Electrical Apparatus to be worked on.
- (d) Padlock earthing mechanisms in closed positions.
- (e) Check earthing integrity on the earthed metal parts at the work location. If healthy and in good condition, leave it as it is. Otherwise, proceed to (f).
- (f) Apply portable earths on the earthed metal parts, such as cable sheath, at the work location.

10.5 WORK ON CURRENT TRANSFORMERS

- (a) Isolate the primary conductors of the Current Transformers from all sources of supply.
- (b) Prove de-energised, earth and danger tag the primary conductors.
- (c) Positively identify and earth the secondary circuits.
- (d) Place a short across the CT terminals (shorting links may be provided).

10.6 WORK ON CABLE OR NEAR CABLE

- (a) Isolate the cable from all sources of supply.
- (b) Padlock and danger tag shutters and/or covers to prevent access to live parts.
- (c) Prove de-energised, danger tag and earth on both ends of the cable to be worked on.
- (d) Where work is required on the cable and earthing is out of sight of the work location, positively identify the cable, prove de-energised and apply portable earths as close as possible to the work location.
- (e) Where work is required near the cable and earthing is out of sight at the work location, positively identify the cable.
- (f) Apply portable earth on the sheath of the cable on both sides of the work location if there is potential danger of induced voltage or transferred earth potential.

10.7 WORK ON OVERHEAD LINE AND AERIAL BUNDLED CABLE

- (a) Isolate the overhead line or aerial bundled cable from all sources of supply.
- (b) Padlock and danger tag the isolators in off positions.
- (c) Prove de-energised and apply earths on both sides of the overhead line or the aerial bundled cable.
- (d) If earthing is out of sight at the work location, positively identify the overhead line or aerial bundled cable, prove de-energised (spiking if it is an aerial bundled cable) and apply portable earths.
- (e) Switch off adjacent overhead lines if there is a potential danger caused by induces voltage from these overhead lines.
- (f) Check the soundness of the poles or structures before climbing.
- (g) The hazardous effects of lightning must be considered, see section 3.11.

SECTION 11 – COMMISSIONING NEWLY INSTALLED AND/OR MODIFIED ELECTRICAL APPARATUS

11.1 Primarily these High Voltage Operating Procedures are for use in operating and maintenance of Electrical Apparatus. However, the intent of these procedures will be complied with when carrying out commissioning of newly installed and/or modified Electrical Apparatus.

11.2 NOTIFICATION OF ADDITIONS AND ALTERATIONS TO THE SYSTEM

The Employer must provide a means of documentation to enable Authorised High Voltage Employees to notify the Network High Voltage Operator (when required) of all additions or alterations to the system, including alterations to the ratings and labelling of Electrical Apparatus, as well as protection systems and relay settings. The Authorised High Voltage Employees may require such information to permit the commissioning tests to be completed.

11.3 Prior to commissioning obtain copies of all pre-delivery test certificates carried out on the Electrical Apparatus to be commissioned.

11.4 If specified commissioning procedures detailing the testing required are not provided the Electrical Supervisor and/or Authorised High Voltage Operator will liaise with the works Project Manager and/or client representative to provide them.

11.5 The Authorised High Voltage Employee having regard to the nature of the testing work to be carried out must know how to do it before proceeding. An Employee must use safety equipment and other tools in the manner approved by the employer, and must inspect safety equipment and other tools to check their serviceability before use.

11.6 PHASING

All new Electrical Apparatus capable of being paralleled with existing Electrical Apparatus should be phased before being placed in service.

All Electrical Apparatus, the connections of which have been broken other than by switches provided for the purpose, should be phased before being returned to service, except when there is no possibility of crossing phases.

11.7 PARALLELING OF BULK SUPPLY POINTS

No operation on the system should have the effect of paralleling, at high Voltage, loads supplied from different bulk supply points without first advising the appropriate Network High Voltage Operator.

- 11.8** Prior to carrying out commissioning of newly installed and/or modified Electrical Apparatus the following procedures, where appropriate, shall be observed.
- (a) Check that all the work is complete and all tools and equipment are cleared.
 - (b) Check earthing system for connections and measure earth resistances.
 - (c) Check all primary conductors for contact and insulation resistance.
 - (d) Check circuit breakers and starters for synchronism, opening and closing times.
 - (e) Check transformers for **ratio, vector group**, impedance and insulation resistance.
 - (f) Check cables for physical connections and earthing of sheaths.
 - (g) Carry out **phasing on primary conductors**.
 - (h) Check all secondary wires including connections, tightness of screws and lugs, insulation resistance and continuity.
 - (i) Carry out setting and functioning check on secondary wires including **protection**, remote and local closing, opening and trip operations, remote/local indications and interlocks.
 - (j) Carry out High Voltage tests on primary conductors (ie: pressure tests)
 - (k) Declare the Electrical Apparatus ready for commissioning and put Access Permit Procedures into place.
 - (l) When necessary advise the respective Network High Voltage Operator of the new and/or modified installation, the proposed date and time of the commissioning.
 - (m) Carry out the Commissioning of the newly installed and/or modified Electrical Apparatus according to the commissioning procedure specification.

SECTION 12 – DOCUMENTS FOR DE-ENERGISATION AND RE-ENERGISATION OF ELECTRICAL APPARATUS

12.1 Four separate documents may need to be completed and issued before planned de-energise and re-energise of Electrical Apparatus can be performed.

12.2 These documents are:

- (a) Danger Tags (Form 77-729);
- (b) Request for Switching Operating and/or Access Permit (Yellow, form 77-362);
- (c) Switching Instruction (Blue, form 77-359);
- (d) Access Permit for Work (Green, form 77-364)
- (e) Access Permit for Test (Pink, form 77-361).
- (f) Operating Agreement (White)

Refer to Appendices for sample forms.

12.3 REQUEST FOR SWITCHING OPERATION AND/OR ACCESS PERMIT

Requests for de-energise and re-energise of Electrical Apparatus, shall be initiated by a High Voltage Service Provider by completing the yellow form "Request for Switching Operation and/or Access Permit".

The Yellow request form shall be handed to the Authorised Switching Instruction Writing Officer for the preparation of the Switching Instruction (blue form).

The request shall be provided to the Authorised Switching Instruction Writing Officer at least three working days prior to planned switching for Sydney Water Corporation's Electrical Apparatus. In relation to Electrical Apparatus owned by the Network High Voltage Operator s (Distribution Authorities) five working days notice is required prior to the planned switching.

If a Network High Voltage Operator (Distribution Authority) is involved, an Operating Agreement may need to be prepared and signed by both parties.

12.4 SWITCHING INSTRUCTION

On receipt of a Request for Switching Operation and/or Access Permit form, the Switching Instructions shall be prepared in writing by the Authorised Switching Instruction Writing Officer. The Switching Instruction shall specify the required change in status of each switch and the sequence of switching to be carried out. A Switching Instruction may be issued although no switching is required, eg: on site liaison with the Network High Voltage Operator.

Concurrence for switching must be agreed with the Network High Voltage Operator and Sydney Water's Asset Owner Representative in charge of the plant where switching is requested.

A copy of the system diagram will be issued with the Switching Instruction for reference while switching.

Switching Instructions are to be examined by the Authorised High Voltage Operators prior to switching operation to ensure that the as-found status of each switch, and the sequence of switching, are both safe and sound to implement. The Authorised High Voltage Operators **MUST** check the status, and proposed change in status, of all relevant switches, and compare them with the Switching Instruction, prior to switching.

Switching Instructions must be strictly adhered to.

Any doubts a Authorised High Voltage Operator may have regarding Switching Instructions must be clarified with the Authorised Switching Instruction Writing Officer and/or verify the High Voltage Switching Instructions before proceeding with switching.

A two Authorised High Voltage Operator Switching Team is required for Operating Work. The recommended procedure for carrying out switching operations is that one member of the two Employee Switching Team read aloud the sequence of the Switching Instruction for the second member of the Switching Team to execute. The first member should oversee the second member to ensure that the switching operation is carried out in compliance with the Switching Instruction.

Neither the Authorised Switching Instruction Writing Officer nor the Authorised Switching Instruction Verifying Officer should be one of the members of the Switching Team carrying out the work, except in an emergency.

12.5 ACCESS PERMIT FOR WORK/TEST

All Electrical Apparatus shall be regarded as being alive until proven de-energised.

If work or testing is required on de-energised Electrical Apparatus, an Access Permit must be issued.

When the Authorised High Voltage Operator has made the specific part of the installation safe by isolating, attaching danger tags, proving de-energised, earthing, and where necessary, erecting tape barriers, an Access Permit for Work/Test will be issued.

No work or further testing may commence until the Authorised High Voltage Operator has issued the Access Permit.

SECTION 13 – SWITCHING OPERATIONS IN AN EMERGENCY

- 13.1** Switching Operations without Switching Instructions - Formal (Definition 2.53) shall **ONLY** be carried out in the case of emergency
- 13.2** In the case of an emergency and prior to switching, the proposed change in status of each switch and the sequence of switching shall be jointly prepared and written as a Switching Instruction - Special (Definition 2.54). By a minimum of one Authorised High Voltage Operator and one Authorised High Voltage Employee who are familiar with the system. This written sequence shall be used as the switching instruction, as indicated in Section 12 of these procedures.
- 13.3** If work is required on Electrical Apparatus after the switching operation, the controlling Authorised High Voltage Operator **MUST** issue an Access Permit detailing the switching procedures and precautions taken. The Access Permit is to be issued to the Authorised High Voltage Recipient who will supervise the work required.
- 13.4** **Copies of Switching Instructions and/or Access Permits and/or other documents MUST be forwarded to the Authorising Officer when work has been completed.**

SECTION 14 – SWITCHING OPERATIONS OUTSIDE NORMAL WORKING HOURS

14.1 Switching outside normal working hours, **SHALL** be conducted **by at least two (2) Authorised High Voltage Operators** using either a Switching Instruction - Formal (Definition 2.53) when out of hours work is organised in advance

OR

Switching Instruction - Special (Definition 2.54). when out of hours work is required and circumstances occur that prevent Switching Instruction - Formal being prepared

The proposed change in status of each switch and the sequence **SHALL** be written prior to switching: -

by at least two (2) High Voltage Operators who have a good operational knowledge of the High Voltage System.

This written sequence **SHALL** be used as the switching instruction, as indicated in Section 12.4.6 of these procedures.

14.2 If work is required on Electrical Apparatus, **an** Access Permit **SHALL** be issued, detailing the switching procedures and precautions taken. (Refer to Section 13.4.)

14.3 **Copies of Switching Instructions and/or Access Permits and/or other documents SHALL be forwarded to the Authorising Officer when work has been completed.**

SECTION 15 – ACCESS PERMITS

15.1 ACCESS PERMITS - GENERAL

All entries made on Access Permits and related documents must be in ink and care must be taken to make the writing clear and legible.

When more than one Access Permit is to be issued for different classes of work or at different work locations, a procedure is required to record the number of Access Permits issued.

Procedures such as cross-referencing the Access Permits, details of Access Permits issued and recorded by the Authorised High Voltage Operator, the use of Permit Envelopes as detailed below are appropriate.

USE OF PERMIT ENVELOPES

In conjunction with the issue of an Access Permit, an Access 'Permit Envelope' will be prepared and attached to a switch, which has been used to isolate the Electrical Apparatus under access. If this switch is a link or bolted connection or other and it is impracticable to attach the Access 'Permit Envelope' to it, the Permit Folder will be fixed in close proximity to the link or bolted connection.

If more than one Access 'Permit Envelope' has been used for the work and/or tests, the words "**PERMIT RECEPTACLE**" must be boldly written across them and the location of the original Access 'Permit Envelope' added.

On completion of the work and/or tests, the Authorised High Voltage Operator must place the permit operating documents relating to the work and/or tests in the original Access 'Permit Envelope' and forward it to the Authorising Officer.

RESPONSIBILITY OF PERSONS RECOVERING ACCESS PERMITS

The Authorised High Voltage Operator recovering cancelled Access Permits must ensure that Electrical Apparatus is not placed in service until all relevant Access Permits have been cancelled.

WITHDRAWAL OF NON-ACCEPTED ACCESS PERMITS

When an Access Permit has not been accepted, it may be withdrawn after reference to the Electrical Supervisor in charge of the work and/or tests.

ALTERATIONS TO ACCESS PERMITS ON ISSUE NOT PERMISSIBLE

If it becomes necessary to alter the work/test instructions, as stated on the Access Permit on issue, the Access Permit must be cancelled. A new Access Permit must be issued setting out the updated work/test instructions.

15.2 Access Permits may be issued for two different applications:

- 1) Access Permit for Work.
- 2) Access Permit for Test.

15.2.1 ACCESS PERMIT FOR WORK

Access Permits for Work must be issued in writing before working on Electrical Apparatus, working within the minimum safe working distance of exposed conductors or working in High Voltage areas.

All Access Permits for Work **MUST** be issued by a Authorised High Voltage Operator and can only be issued to Authorised High Voltage Recipients.

More than one Access Permit for work may be issued at the same time in accordance with Switching Instructions. The Authorised High Voltage Operator must enter the Serial Numbers of all Access Permits issued on the reverse side of the Switching Instruction Form.

15.2.2 ACCESS PERMIT FOR TEST

Access Permits for Test must not be issued until all associated Access Permits for Work have been cancelled.

Access Permits for Test shall only be issued to the relevant Authorised High Voltage Recipients to enable identification of Electrical Apparatus isolated for testing and to indicate to the Authorised High Voltage Recipients the location of any adjacent live Electrical Apparatus.

The relevant Authorised High Voltage Recipients must be issued with Access Permits for Test to conduct the following tests:

- (a) Application of test voltages on Electrical Apparatus.

Application of test voltages in this instance refers to the use of “Meggers” or other insulation testers generating 1000V and above, and to High Voltage withstand (pressure) testing.

- (b) Connection of High Voltage test equipment in preparation for load measurement testing of Electrical Apparatus.

The conditions of the Access Permit for Test allow the Authorised High Voltage Recipient to request removal of applied earths for execution of the actual test.

A temporary cancellation of Access Permit for Test is permissible for the purpose of re-energising Electrical Apparatus, after connection of test equipment to allow load testing.

Because of the possible number of switching operations required while testing, Authorised High Voltage Operator shall remain at the site until the completion of all tests.

15.3 ACCESS PERMIT FOR TEST WHEN SWITCHING IS NOT REQUIRED

When testing secondary or earthing circuits such as protection relays or earth resistance in High Voltage areas, and switching is not required, then the authorised testing personnel shall issue Access Permits for Test to themselves. In this situation, the person issuing the Access Permit shall not be the recipient.

At the completion of test, all documentation including Access Permits shall be forwarded to the Authorising Officer when work has been completed.

15.4 RIGHT TO EXAMINE ACCESS PERMITS

An Authorised SWC Employee, Authorising Officer and/or Inspectors of relevant Regulatory Bodies may examine any Access Permit on issue to determine whether the requirements of these procedures have been carried out and are being observed.

15.5 RIGHT TO WITHDRAW ACCESS PERMITS

An Authorised SWC Officer Employee, Authorising Officer and/or Inspectors of Regulatory Bodies may withdraw an Access Permit on issue if it is considered that the requirements of these procedures are not being complied with.

SECTION 16 – DUTIES OF THE AUTHORISED HIGH VOLTAGE OPERATOR WITH REGARD TO ACCESS PERMITS

AUTHORISED HIGH VOLTAGE OPERATORS MUST NOT ISSUE AN ACCESS PERMIT TO THEMSELVES.

16.1 The Authorised High Voltage Operator must carry out the following procedures before issuing an Access Permit:

- (a) Ensure that a written Risk Assessment has been performed.
- (b) Isolate Electrical Apparatus as listed in Switching Instructions;
- (c) Attach padlocks and danger tags to isolating and earthing switches;
- (d) Prove Electrical Apparatus to be de-energised;
- (e) Earth Electrical Apparatus to be worked on;
- (f) Apply portable earths;
- (g) Erect tape barriers for safe working areas;
- (h) Ensure that the Recipient is authorised to receive an Access Permit for the type of work to be carried out.
- (i) Ensure that the Recipient understands and knows exactly the location of live Electrical Apparatus and of the safety precautions taken.
- (j) Access Permit for **NON-ELECTRICAL** work eg: painting, carpentry, masonry etc., in High Voltage areas shall **ONLY** be issued to an Authorised High Voltage Recipient. The Authorised High Voltage Recipient shall be responsible for the electrical safety of the non-electrical personnel.

16.2 The Authorised High Voltage Operator must enter the following information on the Access Permit:

- (a) The name of the Authorised High Voltage Recipient;
- (b) Accurate designation of apparatus to be worked on;
- (c) Details of work to be carried out;
- (d) Location of all earths including portable earths;
- (g) Particulars of all points of isolation;
- (h) Extraordinary precautions to be taken;
- (g) Define the limits of Access and warn of nearby live Electrical Apparatus;
- (h) Any related permits;
- (i) Signature above the “Authorised High Voltage Operator” and record time and date of issue.

16.3 The Authorised High Voltage Operator must carry out the following procedures when cancelling an Access Permit:

- (a) Check that all the corresponding cancellation columns with sign-on in the issue column have been signed off;

- (b) Inspect the working area with the Authorised High Voltage Recipient to ensure that all plant, tools, and materials have been removed and the Electrical Apparatus is complete and fit to be restored to service;
- (c) Accept the signed off Access Permit and ensure that all persons are clear of the Electrical Apparatus;
- (d) Cancel Access Permit by signing under cancellation;
- (e) Remove danger tags and padlocks from Electrical Apparatus;
- (f) Remove all earths;
- (g) Prove de-earthed by visual inspection;
- (h) Remove tape barriers;
- (i) Energise Electrical Apparatus and restore apparatus to service, in accordance with the Switching Instructions, after considering the possible effects during periods of total fire ban. Refer: Section 3, Clause 3.12.
- (k) Return Switching Instruction, Access Permit and modified System Diagram (if applicable) to the Authorising Officer when work has been completed.

SECTION 17 – DUTIES OF AUTHORISED HIGH VOLTAGE RECIPIENT WITH REGARD TO ACCESS PERMITS

17.1 DUTIES WITH REGARD TO ACCESS PERMIT FOR WORK

The Authorised High Voltage Recipient of an Access permit for Work will carry out the following duties;

- (a) Check the type of work to be carried out and ensure that it is within their scope of authorisation and expertise;
- (b) Accept the Access Permit on behalf of the High Voltage Work Team, and when satisfied with the earthing and safety precautions taken, must sign the Permit and record the time and date;
- (c) Ensure that **ALL** members of the High Voltage Work Team fully understand the information contained in the Access Permit, particularly earthing, safety precautions taken and proximity of live Electrical Apparatus.

Members of the High Voltage Work Team must indicate their understanding of the Permit details by signing and recording time and date in the “issue” column on the back of the permit;

- (d) Make sure that safety precautions established by the Authorised High Voltage Operator are implemented and maintained until cancellation of the Access Permit.
- (e) Remain at the work site whilst work is in progress up until cancellation of the Work Permit;
- (f) Ensure that only High Voltage Work Team personnel, that have signed the Access Permit, enter the work area;
- (g) Keep the Switching Instruction and the Access Permit in a plastic envelope at the point of isolation or at the worksite;
- (h) Ensure that all persons who signed on the “issue” column also sign “Off” on the “cancellation” column on the back of the permit;
- (i) Direct any member of the High Voltage Work Team, who absents himself/herself from the work site due to unforeseen circumstances, to sign “Off” the Access Permit and to sign “On” again if and when resuming work;
- (j) Take all reasonable steps to obtain the cancellation signature of any absent High Voltage Work Team member before the Permit is

relinquished. If an absent member's signature cannot be obtained and essential services must be urgently re-energised, then under these exceptional circumstances, the Authorised High Voltage Recipient shall sign "Off" the Permit for the absent member. This action shall be recorded under "Remarks" on the Access Permit.

If the Authorised High Voltage Recipient does not report for work, or leaves the work site, then the Permit must be transferred to a relieving Authorised High Voltage Recipient before work can continue.

If the responsibility of a Authorised High Voltage Recipient of a Permit is transferred to a person who signed "On" the Permit under "Issue" then that person shall sign "Off" under "Cancellation" before signing as a relieving Authorised High Voltage Recipient.

If the relieving Authorised High Voltage Recipient has not worked under the current Permit and does not fully understand the Conditions of Issue then the Authorised High Voltage Operator must again issue instructions in the same precautions taken for issue of the Permit.

When the relieved Authorised High Voltage Recipient returns to the work site, he/she must again sign "On" the Permit before resuming work.

- (k) Upon completion of the work or as requested by the issuing Authorised High Voltage Operator, surrender the signed "Off" Access Permit to the Authorised High Voltage Operator.
- (l) Where possible, inspect the work with the Authorised High Voltage Operator to ensure that work has been satisfactorily completed and that the site Electrical Apparatus is fit to be safely tested and/or restored to service.

17.2 DUTIES WITH REGARD TO ACCESS PERMIT FOR TEST

The Authorised High Voltage Recipient of an Access Permit for Test will carry out the following duties:

- (a) Check the type and scope of the test work to be carried out and ensure that it is within their scope of authorisation and expertise;
- (b) Accept the Access Permit on behalf of the High Voltage Testing Team, and when satisfied with earthing and safety precautions taken, must sign the Permit recording the time and date;
- (c) Ensure that **ALL** members of the High Voltage Testing Team fully understand the information contained in the Access Permit, particularly

earthing, safety precautions taken and proximity of live Electrical Apparatus.

Members of the High Voltage Testing Team must indicate their understanding of the Permit details by signing and recording the time and date in the “issue” column on the back of the Permit;

- (d) Make sure that safety precautions established by the Authorised High Voltage Operator are implemented and maintained until cancellation of the Access Permit;
- (e) Remain at the test site whilst testing is in progress up until cancellation of the Access Permit;
- (f) Ensure that only High Voltage Testing Team personnel, that have signed the Access Permit, enter the test area;
- (g) Keep the Switching Instructions, testing procedures and the Access Permit in a plastic envelope at the point of isolation or at the test site;
- (h) Ensure that all persons who signed ‘On’ the “Issue” column sign “Off” on the “Cancellation” column on the back of the permit when testing has completed.
- (i) Direct any member of the High Voltage Testing Team, who absents himself/herself from the work site due to unforeseen circumstances, to sign “Off” the Access Permit and sign “On” again if and when resuming testing.
- (j) Take all reasonable steps to obtain the cancellation signature of any absent High Voltage Testing Team member before the Permit is relinquished. If an absent member’s signature cannot be obtained and essential services must be urgently re-energised, then under these exceptional circumstances, the Authorised High Voltage Recipient shall sign “Off” the Permit for the absent member. This action shall be recorded under “Remarks” on the Access Permit.

If the Authorised High Voltage Recipient does not report for work, or leaves the work site, then the Permit must be transferred to a relieving Authorised High Voltage Recipient before testing can continue.

If the responsibility of a Authorised High Voltage Recipient of a Permit is transferred to a person who signed “On” the Permit under “Issue” then that person shall sign “Off” under “Cancellation” before signing as a relieving Authorised High Voltage Recipient.

If the relieving Authorised High Voltage Recipient has not worked under the current Permit and does not fully understand the Conditions of Issue then the Authorised High Voltage Operator must again issue instructions in the same precautions taken for issue of the Permit and the testing to be performed.

When the relieved Authorised High Voltage Recipient returns to the testing site, he/she must again sign "On" the Permit before resuming testing.

- (k) Upon completion of the testing or as requested by the issuing Authorised High Voltage Operator, surrender the signed "Off" Access Permit to the Authorised High Voltage Operator.
- (l) Where possible, in consultation with the Authorised High Voltage Operator, inspect and review the testing procedures completed to ensure that testing has been satisfactorily completed and that the site Electrical Apparatus is fit to be safely restored to service.

SECTION 18 – PLACE OF ISSUE OF ACCESS PERMIT

- 18.1** The place of Issue of the Access Permit shall preferably be at the point of isolation, or alternatively at the work site, and shall be nominated on the Switching Instruction.
- 18.2** The Access Permit shall be issued to the Authorised High Voltage Recipient personally.

SECTION 19 – ROUTINE MAINTENANCE UNDER ACCESS PERMIT

All Electrical Apparatus shall be regarded as being alive until proven de-energised.

- 19.1** Switching operations required to allow for routine maintenance of Electrical Apparatus may be carried out with Switching Instructions - Formal (Definition 2.53). Routine maintenance, in this instance, is referred to as part of the maintenance procedures in place for the ongoing maintenance of the equipment, for which Switching Instructions will have been issued as part of the routine before the work is commenced. (Refer to Definition 2.53Part d)
- 19.2** Where the apparatus to be maintained is fed from a multiple supply arrangement (e.g. more than 1 feeder, a ring main system or the possibility of low voltage back feed), a separate Switching Request should be made each time the routine maintenance is to be performed.
- 19.3** Access Permit procedures must be adhered to.
- 19.4** Refer to Sections 16 and 17 for duties of the Authorised High Voltage Operator and Authorised High Voltage Recipient with regard to access permits.

SECTION 20 – WORK UNDER ACCESS CONTINUING FROM DAY TO DAY

- 20.1** Permits shall be issued for a maximum of 10 working days only and must be renewed after this period if work is to continue. Persons carrying out the work must sign on the “Issue Column” and then sign off in the “Cancellation Column” on a day to day basis for work spanning more than one day.
- 20.2** If work cannot be finished on the 10th day, the original permit must be cancelled and a new Permit re-issued. Again, the High Voltage Operator must go through all the procedures pertaining in Section 16.
- 20.3** Persons covered by an Access permit who known in advance that they will be absent from the work site must sign “Off” in the Cancellation Column. On return to the site, the Authorised High Voltage Recipient shall identify the Electrical Apparatus under Access and, when satisfied that the returning persons are again familiar with the limits of the Permit, shall direct the returning persons to sign “On” the Access Permit before recommencing work.
- 20.4** Access Permit for **NON-ELECTRICAL** Work eg. painting, carpentry, masonry etc., in High Voltage areas shall **ONLY** be issued to an Authorised High Voltage Recipient. The Authorised High Voltage Recipient shall be responsible for the electrical safety of the non-electrical personnel. The Access Permit to be issued on a day to day basis.

SECTION 21 - AUTHORISED HIGH VOLTAGE RECIPIENT OF ACCESS PERMIT NOT REPORTING FOR WORK

21.1 The procedure to be adopted for work spanning more than one day when the Authorised High Voltage Recipient of an Access Permit does not report for work on the second or any subsequent day of Access is as follows:

“The Access Permit must be transferred, by **the Authorised High Voltage Recipient’s Electrical Supervisor**, to a Relieving Authorised High Voltage Recipient before work can continue.”

21.2 Reasonable steps shall be taken by the Relieving Authorised High Voltage Recipients Electrical Supervisor to obtain the relieved Authorised High Voltage Recipient’s signature on the Permit. If the relieved Authorised High Voltage Recipient’s signature cannot be obtained, then under these circumstances, the Authorised High Voltage Recipients Supervisor shall sign “Off” the Permit for the Relieved Authorised High Voltage Recipient. This action shall be recorded under “Remarks” on the back of the Access Permit.

21.3 If the Relieving Authorised High Voltage Recipient does not fully understand their duties, he/she must request the Authorised High Voltage Operator to explain the conditions of Access and their responsibilities as the Authorised High Voltage Recipient before signing as a relieving Authorised High Voltage Recipient.

21.4 The Relieving “Authorised High Voltage Recipient’s Electrical Supervisor” shall arrange for the Authorised High Voltage Operator, who issued the Access Permit, to be on site.

The Authorised High Voltage Operator shall ensure that the relieving Authorised High Voltage Recipient is authorised to receive the Access Permit for the type of work to be carried out. The Authorised High Voltage Operator will then ensure that the relieving Authorised High Voltage Recipient understands and knows exactly the location of live Electrical Apparatus and of safety precautions taken.

21.5 When the relieved Authorised High Voltage Recipient returns to the work site, he/she must again sign on the Permit before resuming allocated duties.

SECTION 22 - CANCELLATION OF ACCESS PERMITS FOR WORK OR TEST

- 22.1** Electrical Apparatus under Access Permits must not be returned to service until all relevant Access Permits have been cancelled.
- 22.2** The Authorised High Voltage Recipient shall take all reasonable steps to obtain any absent Working Team member's cancellation signature before the Permit is relinquished. If an absent member's signature cannot be obtained and essential services must be urgently re-energised, then under these exceptional circumstances, the Authorised High Voltage Recipient shall sign "off" the Permit for the absent members. This action must be recorded under "Remarks" on the Access Permit.
- 22.3** The Authorised High Voltage Recipient shall, at the earliest opportunity, personally advise the absent member that the apparatus is regarded as being live and the permit has been cancelled.
- 22.4** On completion of work or test the Authorised High Voltage Recipient must ensure that all persons who signed "On" the Permit has signed "Off" and then instruct them to regard the Electrical Apparatus as being alive. The Authorised High Voltage Recipient must then sign off the Permit and return it to the Authorised High Voltage Operator or to the Permit Envelope.
- 22.5** The Authorised High Voltage Operator must cancel the Access Permit by signing.
- 22.6** The Access Permit with the Authorised High Voltage Operator's comments if any, together with the Switching Instruction must then be returned to the Authorising Officer when work as been completed.

SECTION 23 - WORK EXEMPTED FROM ACCESS PERMIT REGULATIONS

All Electrical Apparatus shall be regarded as being alive until proven de-energised.

23.1 Access Permits need not be issued for the following activities:

- (a) Switching of an operational nature, where work or testing is not required;
- (b) Work carried out outside of High Voltage Areas on Electrical Apparatus that cannot be energised.
- (c) Work on Electrical Apparatus that is not capable of being energised by the closing of a switch and is not in close proximity to live unenclosed Electrical Apparatus.
- (d) Work on apparatus that has no connections to any possible source of electrical supply.
- (e) Operating work under conditions where no person and/or no material being used or handled by that person can come near (see Section 6) any exposed conductor which is live or can be energised.
- (f) Entry in High Voltage Areas to carry out inspections, that are not near High Voltage exposed conductors, as defined and approved by the Owner Representative and/or an Authorised High Voltage Operator.

SECTION 24 – USE OF SAFETY AND TEST EQUIPMENT AND OTHER TOOLS

- 24.1** The Authorised High Voltage Operators and Authorised High Voltage Recipients shall **ONLY** use approved safety and test equipment and tools.
- 24.2** Equipment and tools must comply with the relevant Australian Standards and Codes of Practice.
- 24.3** The Authorised High Voltage Operators and Authorised High Voltage Recipients **MUST** check all equipment and tools to ensure that they are in good condition, and that the re-test date has not expired, before use.
- 24.4** The Authorised High Voltage Operators and Authorised High Voltage Recipients **MUST NOT** use defective equipment. Once identified, defective equipment and/or tools must be removed from service and replacements obtained.
- 24.5** Safety/test equipment and tools shall be tested and calibrated at prescribed intervals and appropriately labelled/tagged. The application of all equipment and tools shall conform strictly to manufacturers instructions.

SECTION 25 – ACCIDENT REPORTING, INCIDENT MANAGEMENT AND INVESTIGATION


25.1 Refer to the current reporting system in Sydney Water Corporation.

Each Division is to use their Standard Accident Reporting, Incident Management and Investigation Procedures/documents.

APPENDIX A

Front of Tag



	
<p>HIGH VOLTAGE OPERATIONS</p>	
<p>DANGER TAG ATTACHED AS PER REQUIRED BY SWITCHING</p>	
Switching Instruction No	
Reason for Switching/Remarks	
Name of Service Provider Employees	
Contact Phone No.	
Signed	
Date	

Back of tag

Danger Tag

APPENDIX B

SYDNEY WATER CORPORATION

Form No. HVOP.03

DECLARATION TO BE SIGNED BEFORE WORKING ON OVERHEAD LINES

I, _____
(insert full name)

Of _____
insert company or address)

- Am accustomed to working on ladders and am not subject to giddiness, defective sight, or any other physical defect which might cause me to lose my balance when working at a height above the ground.
- Undertake to notify my employer if at any time I am unfit to perform work in elevated positions without risk to myself and others.
- Am aware that contact with or close approach to an overhead line is highly dangerous unless suitable precautions are taken.
- Know that overhead lines should be treated as being "alive" unless it is definitely known that they have been proved de-energised.
- Am aware that while working on a live low voltage conductor, contact must not be made with any other conductor, neutral or otherwise for any metallic structures or attachments which may be earthed. (Such metallic structures or attachments include earth wires, stay wires, structural steel, transformer tanks, street lighting brackets, conduits, pole bands, insulator suspensions and supports, metallic sheathed cables end boxes).
- Am aware that a safety belt or harness must be worn on all occasions where overbalancing might lead to an incident.
- Have made myself conversant with the provisions of the Electrical Supply (Safety Plans) Regulation 1997 that are relevant to work on overhead lines. Have made myself conversant with the Guide to Working on Overhead Lines, the Guide to Safe Electrical Work Procedures, and the precautions necessary to ensure that minimum safe working distances are observed.
- Have made myself conversant with my employer's Electrical Safety Rules.

Signed _____

Witness _____
(Print Name)

Date _____

of _____
(Print Address)

Signed _____
(Signature of Witness)

**DECLARATION TO BE SIGNED BEFORE ASSISTING IN WORK ON OVERHEAD
LINES**

I, _____
(Insert full name)

Of _____
(Insert company or address)

- Am accustomed to working on ladders and am not subject to giddiness, defective sight, or any other physical defect which might cause me to lose my balance when working at a height above the ground.
- Undertake to notify my employer if at any time I am unfit to perform work in elevated positions without risk to myself and others.
- Am aware that contact with or close approach to an overhead line is highly dangerous unless suitable precautions are taken.
- Know that overhead lines should be treated as being "alive" unless it is definitely known that they have been proved de-energised.
- Am aware that while working on a live low voltage conductor, contact must not be made with any other conductor, neutral or otherwise for any metallic structures or attachments which may be earthed. (Such metallic structures or attachments include earth wires, stay wires, structural steel, transformer tanks, street lighting brackets, conduits, pole bands, insulator suspensions and supports, metallic sheathed cables end boxes).
- Am aware that a safety belt or harness must be worn on all occasions where overbalancing might lead to an incident.
- Have made myself conversant with the provisions of the Electrical Supply (Safety Plans) Regulation 1997 that are relevant to work on overhead lines. Have made myself conversant with the Guide to Working on Overhead Lines and the Guide to Safe Electrical Work Procedures, and the precautions necessary to ensure that minimum safe working distances are observed.
- Have made myself conversant with my employer's Electrical Safety Rules.

Signed _____

Witness _____
(Print Name)

Date _____

of _____
(Print Address)

Signed _____
(Signature of Witness)

**APPENDIX D SITE WORK HAZARD AND RISK CONTROL ASSESSMENT FORM
RISK ASSESSMENT MATRIX**

CONSEQUENCE OR IMPACT <i>What type of impact do you expect could result from exposure to this hazard?</i>	LIKELIHOOD <i>How often are people exposed to the hazard under assessment and how likely is it that these circumstances can and will lead to an accident?</i>			
	Very Likely The event could happen at any time	Likely The event could happen sometime.	Unlikely The event could occur but very rarely.	Very Unlikely The event could happen but probably never will
Catastrophic <ul style="list-style-type: none"> • Death • Toxic release off-site with detrimental effect • Huge financial loss 	1	1	2	3
Major <ul style="list-style-type: none"> • Extensive injuries • Loss of production capability • Off-site release with no detrimental effects • Major financial loss 	1	2	3	4
Moderate <ul style="list-style-type: none"> • Medical treatment required • On-site release immediately contained • High financial loss 	2	3	4	5
Minor <ul style="list-style-type: none"> • First Aid Treatment • On-site release immediately contained • Medium financial loss 	3	4	5	6
Insignificant <ul style="list-style-type: none"> • No injuries • Low financial loss 	4	5	6	6

APPENDIX D (Cont.) CONTROLLING THE RISK

Controlling the risk means taking appropriate action to reduce the consequence of the hazard or the likelihood of injury or damage. At this Point, each hazard has been allocated a risk rating between 1 (highest priority) and 6 (lowest priority). Clearly, it is preferable to develop controls for the high priority hazards first. If a lower priority hazard can be easily fixed, do so, but don't fall into the trap of doing the easy things first and leaving the hard, high priority hazards!

The following table provides a guideline on the urgency to be placed upon controlling the risk.

RISK RATING	ACTION
1	Immediate action must be taken to reduce the likelihood and/or the consequence or impact.
2	Action should be taken in the near term to implement short-term controls to reduce the likelihood and/or the consequence or impact. Longer-term controls, which may involve significant capital expenditure, should be budgeted. Acceptance of the risk at this level of impact should be avoided.
3	Action should be taken within an intermediate period to implement short-term controls to reduce the likelihood and/or the consequence or impact.
4	Monitor the risk and reassess at regular intervals. If possible implement controls within a reasonable period to reduce the likelihood and/or the consequence or impact.
5	Monitor the risk and reassess at regular intervals. Consider implementing controls within an acceptable timeframe to reduce the likelihood and/or the consequence or impact.
6	Monitor the risk and reassess at regular intervals. More often than not, acceptance of a risk at this level would be considered acceptable.

APPENDIX E

SAMPLE: OPERATING AGREEMENT FORM (Front)

OPERATING AGREEMENT			
1. ISSUE			
The following high voltage Mains/Apparatus have been:			
a) Isolated in accordance with (Name of Organisation) _____	Electrical Safety Rules		
b) Earthed and short-circuited (strike out if not applicable)			
to allow (Name of Organisation) _____	staff to work on the interconnection between their network and (Name of Organisation) network		
High Voltage Mains/Apparatus			

Isolation Points The high voltage Mains/Apparatus have been isolated at the following points:			

Earthing Earthing and Short-circuiting equipment has been applied to the high voltage Mains/Apparatus at the following locations: (strike out if not applicable)			

The above high voltage Mains/Apparatus will remain in this condition until this Operating Agreement is cancelled.			
ISSUED BY _____ (print name) Signature _____			
Classification _____ (Name of Organisation) _____ Time _____ Date _____			
2. ACCEPTANCE BY RECIPIENT			
• I hereby acknowledge that I have received advice from the (Name of Organisation) _____ representative that the Mains/Apparatus referred to above have been:			
a) Isolated from all possible sources of supply from the (Name of Organisation) _____ network.			
b) Earthed and short-circuited on the (Name of Organisation) _____ network (strike out if not applicable) and shall remain so until this agreement is cancelled.			
• I am aware of the nature and position of the Mains/Apparatus covered by this agreement and will regard all other Mains/Apparatus as alive.			
• I understand it is my responsibility to inform those persons working under this agreement of the Mains/Apparatus covered by this agreement.			
ACCEPTED BY (Name of Organisation) _____ representative _____ (Print name)			
Signature _____ Classification _____ Time _____ Date _____			
3. CANCELLATION			
The above Mains/Apparatus are no longer required to be isolated/earthed. This Operating Agreement is hereby cancelled. I have advised all persons working under this agreement to regard the above Mains/Apparatus as alive.			
CANCELLED BY (Name of Organisation) _____ representative _____ (Print name)			
Signature _____ Classification _____ Time _____ Date _____			
Noted by (Name of Organisation) _____ representative (print name) _____ signature _____			

**APPENDIX F
REQUEST FOR SWITCHING OPERATION AND/OR ACCESS PERMIT**

Sydney WATER **Sydney Water Corporation
High Voltage Operations**

REQUEST FOR SWITCHING OPERATION AND/OR ACCESS PERMIT **01255**

Form 77-862 (Sep 01)

Location of Switching Operation _____

At least 3 working days notice MUST be given prior to the date nominated below for Sydney Water's electrical apparatus, and 5 working days for electrical apparatus owned by supply authorities.

ACCESS PERMIT REQUIRED	Date _____	Time _____	Hours _____	DURATION _____
SWITCHING REQUIRED	Date _____	Time _____	Hours _____	DURATION _____

Purpose of Switching Operation: _____

Location where Access Permits to be issued: _____

Other Relevant Information: _____

Name of Requester of Access Permit: _____

Requested By _____

Name _____

Signature _____

Request Accepted for Processing By _____

Switching Instruction No. _____ Issued on _____

APPENDIX H

ACCESS PERMIT FOR WORK

Sydney WATER Sydney Water Corporation
High Voltage Operations

ACCESS PERMIT FOR WORK
Issued in accordance with Switching Instruction No.: _____ **W**
This Access Permit **MUST NOT** be removed from work site until cancelled.

Form HVOP (Rev 01)

Location of Work _____

This Permit allows Access to the following Electrical Apparatus: _____

The Electrical Apparatus have been isolated and Earthed at the Following Locations: _____

I hereby issue this Access Permit to the name: _____
and certify that the Electrical Services High Voltage Operating Procedures have been carried out and the following procedures taken:

_____ Hours _____/_____/_____
H.V. Operator

I accept this Access Permit and understand the conditions under which it is issued. I shall instruct all persons working under this Permit that all electrical apparatus in this installation, other than those identified as being isolated for Work, shall be regarded as being alive.

_____ Hours _____/_____/_____
Recipient

TRANSFER OF ACCESS PERMIT
(We hereby state that this Access Permit is transferred)

From _____ to _____ Date _____/_____/_____
Relieved Recipient Relieving Recipient

From _____ to _____ Date _____/_____/_____
Relieved Recipient Relieving Recipient

