

Safe Work Instruction

Issue date: 22/10/09

Rescue from Live Low Voltage Equipment (Including Rescue Kit Care)

Review date: 15/09/12

Document no.	Work description Rescuing casualties from situations involving live low voltage equipment at ground level.		
	Scope This SWI excludes special procedures that apply to the rescue of casualties from height. This SWI includes the requirements for the inspection, use and care of rescue kits.		
Review date	References <ul style="list-style-type: none"> ISSC 24 "Guide to Electricity Workers' Escape & Rescue Procedures" 1997, Electricity Association of NSW. ISSC14 "Guide to Electrical Workers' Safety Equipment" 		
Responsible supervisor <i>Insert name in BLOCK letters</i>	PPE and precautions	Competencies or qualifications	Licences or permits required
	As described in this document	Qualified electrical workers as described in SMS-11-GD-0244 Personnel Certifications - Electrical Authorisation	
Tools and equipment required As described below			
IF CONTROL MEASURES ARE NOT SUITABLE AND MAJOR CHANGES ARE NEEDED, CONDUCT A RISK ASSESSMENT AND DEVELOP NEW CONTROLS ACCORDING TO SMS-06-PR-0104 WORKPLACE RISK MANAGEMENT.			
Overview	This SWI is mandatory for working on or near live LV electrical equipment for the supply or distribution of electricity. For work on live LV electrical installations, where determined by a risk assessment, this SWI is also mandatory. For work near live electrical equipment, the application of this SWI depends on the risk assessment associated with the work to be carried out. Factors to be considered during risk assessment include but are not be limited to: <ul style="list-style-type: none"> complexity of the work proximity to live exposed conductors work environment number of persons working as a team, and tools and equipment (including personal protective equipment) used. 		
Principles and priorities	Rescue procedures cannot be defined in detail for all cases. However, everyone who works on or near LV electrical equipment, and those assisting in such work, are to be familiar with the basic principles outlined in this SWI. In situations involving electric shock, give priority to the prompt release and rescue of a victim as time is essential for the victim's survival.		
Employee competence	Authorised Electrical workers are to undergo training, instruction and assessment in the rescue procedures at intervals not exceeding 12 months. Line Managers are to make sure that records of this training are kept. Where it is determined during work planning activities that a person who has been assessed as competent to undertake this rescue is required, the field supervisors are to make sure they are present during live low voltage works.		
Rescuer's safety	Anyone may carry out a rescue provided they do not place at risk their own safety. At all times rescuers are to fully assess the situation they are facing and not jeopardise their own safety by any action they may take, despite the consequences this might have for any victim. All personnel undertaking the rescue are to wear the appropriate personal protective equipment (PPE).		
	 Note	<i>Take care that the rescuer does not become a casualty!</i>	
Release from live electrical equipment	Contact with live electrical equipment can result in the worker becoming the victim of electric shock. The recommended steps to be taken for the release and rescue are summarised in the flowchart (Figure 2).		

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Rescue kit	<p>The rescue kit is contain the following items (as shown in Figure 1):</p> <ul style="list-style-type: none"> (a) torch (b) emergency isolation tag (c) low voltage retrieval aid (insulated crook) (d) trauma dressing (e) rescue kit bag (f) fire blanket (g) insulated gloves (h) list of contents (not shown in the photo) 
<p>Figure 1 Rescue kit items</p> <p>Check the rescue kit before use to make sure all items are in good condition:</p> <ul style="list-style-type: none"> • torch functioning properly • trauma dressing is sealed and within use by date • test insulating gloves to make sure there is no air leakage • check the insulated crook and bag for any sign of damage. <p>In addition, the LV insulating gloves are to be inspected 6 monthly in line with Section 4.4 of ISSC14. Other missing contents must be replaced as required. The insulating crook is rated for 5 kV, and hence visual checking to make sure there is no damage would be adequate. A 1 kV DC megger test for 1 minute can be applied if there is doubt on its condition. The measured resistance value is not to be less than 50 M ohm.</p> <p>The rescue kit is to be readily available prior to work being performed on or near live low voltage equipment.</p> <p>The rescue kit is to be arranged so that items, particularly the insulated gloves and crook, are readily available. Install the emergency isolation tag at the isolation switch before starting work.</p>	

General precautions for rescue	<p>1 Quickly observe the general circumstances, noting:</p> <ul style="list-style-type: none"> • the voltage is involved and if it is LV • if there are special difficulties involved • if special precautions are necessary. <p>2 Act promptly: Time is important and delay may be fatal; but speed of action must be accompanied by due care.</p> <p>3 Take precautions against receiving a shock yourself: Remember that until the victim is released or power supply has been isolated, the victim is electrified at the voltage of the live electrical equipment.</p> <p>4 Where practicable, isolate the power supply: If the electrical equipment contacted by the victim is controlled by a switch, which is readily accessible, the switch should be immediately opened to facilitate the rescue. This is subject to the rescuer being knowledgeable and competent to do so. The equipment involved must still be treated as alive unless proved de-energised.</p>
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Key considerations	The key considerations for situations involving low voltage are that: <ul style="list-style-type: none"> the minimum safe approach distance for live LV conductors is 500mm for trained electrical persons the use of LV insulating gloves is mandatory as it provides full protection to the rescuer. This can be enhanced by the use of an insulated LV retrieval aid, such as the insulated crook, which provides additional insulation and allows extra clearances to be maintained.
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Rescue steps	<p>Follow these general steps in rescue from live LV equipment:</p> <ol style="list-style-type: none"> Seek help – if practicable, and if this can be done without delay, e.g. verbal request to bystanders Assess the situation. Isolate the supply, unless the isolation switch is far away from the incident site, or the rescuer is not able to do this safely. Put on the insulating gloves Grab the insulated crook. Check for danger such as live parts, live cables and the potential to cause a short circuit. Approaching from behind the victim, place the retrieval crook under shoulder. Turn the retrieval crook into body. When pulling the victim clear, the crook can slide off if it is not turned into body and just placed under arm. Pull the victim clear, and then support the head to a safe position. Call for help (ambulance), if this has not already been done. Carry out resuscitation and first aid as soon as the victim is clear of the LV electrical equipment. Treat burns. <pre> graph TD A([Electrical accident occurs]) --> B{Is more than 1 rescuer present?} B -- Yes --> C[Seek medical assistance immediately] B -- No --> D{Low voltage?} D -- No --> E[Stop rescue and contact EOC for HV isolation] D -- Yes --> F{Can minimum safe approach distance be maintained?} F -- Yes --> G[Confirm no danger to rescuers, then proceed] F -- No --> H{Can the supply be quickly isolated?} H -- Yes --> I[Isolate] H -- No --> J[Use insulating gloves and crook to release victim] I --> J J --> K[Remove victim to a safe place] K --> L[Commence first aid / CPR and seek medical assistance] </pre>
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Figure 2 Release and rescue procedure in the event of a live LV electrical accident**Additional controls**