Purpose

This procedure describes the process to manage hazards associated with working around electrical equipment to reduce the risks so far as is reasonably practicable (SFAIRP).

Scope

This procedure is applicable to all ‘persons conducting a business or undertaking’ (PCBU) and all workers irrespective of their employer (the PCBU) or discipline, when working around electrical equipment owned or maintained by RailCorp or Sydney Trains.

Note

This Operating Procedure must be read in conjunction with RailCorp SMS guide SMS-06-GD-0268 Working around Electrical Equipment.

Process Flow

6.6 Manage risks when working around electrical equipment
   6.6.1 Identify hazards
   6.6.2 Assess risks
   6.6.3 Determine control measures
   6.6.4 Implement control measures
   6.6.5 Monitor and review controls

Figure 1 - Process flow for manage risks when working around electrical equipment
Procedure

6.6: Manage risks when working around electricity

The human body is a conductor of electricity and severe injury or death results if a conducting path that allows electric current to pass through the body is formed. A conducting path can be formed by:

- touching or making contact with the exposed live electrical equipment with any portion of the body, whether intentionally or inadvertently
- bringing any portion of the body close enough to the exposed live electrical equipment for an arc to occur between the equipment and the body
- bringing close or touching the exposed electrical equipment with tools or materials that are not insulated.

RailCorp SMS guide SMS-06-GD-0268 Working around Electrical Equipment describes the hazards associated with working around electrical equipment, and the procedures:

- to eliminate work health and safety risks, so far as is reasonable practicable, and
- if it is not reasonable practicable to eliminate risks, to minimise work health and safety risks so far as is reasonable practicable (SFAIRP)

when working on, near or in the vicinity of electrical equipment owned or maintained by RailCorp or Sydney Trains.

The requirements of RailCorp SMS guide SMS-06-GD-0268 Working around Electrical Equipment vary according to:

- the proximity to the electrical equipment,
- the voltage level,
- the type of work being done,
- whether mobile plant is used to undertake the work, and
- the competency of the persons involved.

6.6.1: Identify hazards

The Line Manager is responsible for identifying the hazards associated with working around electrical equipment (i.e. the tasks, situations and/or sequences of events that could potentially cause harm) in accordance with RailCorp SMS guide SMS-06-GD-0268 Working around Electrical Equipment. Hazard identification must involve Electrically Authorised Persons and Qualified Electricians, in accordance with RailCorp SMS guide SMS-06-GD-0268 Working around Electrical Equipment, and consultation with affected workers.
Warning

It is not sufficient to consider only the range or intended range of movement required to do the work.

Hazard identification and risk management must take account of the full extent of movement that the plant, equipment, tools or people can reach.
6.6.1: (continued) Refer to RailCorp SMS guide SMS-06-GD-0268 Working around Electrical Equipment for further information on particular electrical hazards including:

- Work activities and tools
- Work on or near electrical equipment
- Work in the vicinity of electrical equipment
- Work above exposed electrical equipment
- Construction of new aerial cables
- Work on, near or in the vicinity of underground cables
- Concealed Cables
- Traction system
- Emergency situations
- Work around electrical equipment using mobile plant
- Temporary structures or scaffolding works around electrical equipment

Site specific risks are those risks that may only become apparent during an onsite assessment and include, but are not limited to, the following conditions:

- weather conditions - effects of wind and temperature on the equipment and/or conductors, the amount of sag and sway that can be expected and the effects of wind gusts on a load being handled
- ground conditions - effects of moisture, contour etc. that may affect the movement of plant or cranes
- lighting conditions - low light levels or glare that may impede clear viewing of the conductors
- sighting distances and conditions - including visibility of the conductors and the ability to accurately determine distances and clearances.

6.6.2: Assess risks

Line Managers are to make sure that:

- a risk assessment related to the tasks to be undertaken has been properly conducted in accordance with RailCorp SMS guide SMS-06-GD-0268 Working around Electrical Equipment and the appropriate control measures are implemented, and
- persons intending to work around electrical equipment are appropriately qualified in accordance with RailCorp SMS guide SMS-06-GD-0268 Working around Electrical Equipment and where required by RailCorp SMS guide SMS-06-GD-0244 Personnel Certifications – Electrical Authorisations.
Electrically Authorised Persons and Qualified Electricians are to assess the risks associated with any work that:

- brings the work party or plant close to electrical equipment, or
- might put the work party or plant operator in a position to inadvertently come within the Safe Approach Distances (SAD) of electrical equipment specified in RailCorp SMS guide SMS-06-GD-0268 Working around Electrical Equipment.

Where an existing Safe Work Method Statement (SWMS) or Safe Work Instruction (SWI) is to be used, the Line Manager is to conduct and document the assessment in accordance with SMS-06-OP-3043 06.16 Managing Risk Using Safe Work Practices. This assessment includes:

- confirming that the existing SWMS/SWI is current and fit-for-purpose
- using the Pre-work briefing process (refer to SMS-06-OP-3114 06.20 Pre-work briefings) to identify and document site specific hazards, risks, emergency response procedures and the Safety Observer requirements set out in the RailCorp SMS guide SMS-06-GD-0268 Working around Electrical Equipment.
- having workers sign SMS-06-FM-4163 Pre-work briefing form to acknowledge the SWMS/SWI briefing or instruction
- attaching the completed Pre-work briefing form to the SWMS/SWI.

If an existing SWMS/SWI covering the work to be done is not available, the Line Manager is to conduct the assessment by:

- developing a SWMS/SWI in accordance with SMS-06-OP-3043 06.16 Managing Risk Using Safe Work Practices.
- preparing a Pre-work briefing that covers site specific risks and the requirements set out in the RailCorp SMS guide SMS-06-GD-0268 Working around Electrical Equipment.

Persons planning work around electrical equipment must ensure that the work is assessed and planned to enable the highest practicable level of risk control to be applied. Refer to RailCorp SMS guide SMS-06-GD-0268 Working around Electrical Equipment for further information on:

- Elimination of risks,
- Separation of the hazards, and
- Administrative controls, and
- Personal Protective Equipment (PPE).

Line Managers and persons planning the work are not to rely upon prior training and competency as the sole risk control measure.
6.6.3: (continued) Persons in charge of the work party must make sure that:

- the work process is adequately controlled so that all persons, equipment, plant tools or material do not come within the prescribed minimum SADs of exposed electrical equipment, and

- persons carrying out the work are warned to not allow any part of their body, clothes, tools or material they are using or carrying to come within the prescribed minimum SAD of exposed electrical equipment, and

- persons carrying out the work understand the work process controls that have been put in place, and that they must not pass over or under any work area or access markers, safety fences, demarcation tape or other special barriers placed in connection with the work.

- safe work practices, including controls, are documented and retained in the organisation’s record keeping system in accordance with the requirements of SMS-09-SP-3021 Records Management.

6.6.4: Implement control measures

Line Managers and Persons in charge of the work party must make sure that workers do not start work until they have received the required instruction and pre-work briefing. (Refer to SMS-06-OP-3114 06.20 Pre-work briefings.)

The person in charge of the work party must supervise the work party in accordance with the RailCorp SMS guide SMS-06-GD-0268 Working around Electrical Equipment.

If a Permit is required, the Permit Holder must supervise the work party in accordance with the RailCorp SMS guide SMS-06-GD-0268 Working around Electrical Equipment and comply with their responsibilities as identified on the Electrical Permit.

If a Permit is required, workers must comply with their responsibilities as identified on the Electrical Permit.

Workers are to treat every situation as potentially dangerous and proceed only if:

- it is safe to do so, and

- the required safety procedures are followed.

All persons should consult an electrical discipline representative if there is any doubt about whether the electrical equipment is live or dead.

Note

Every situation must be treated as potentially dangerous and only proceed when it is known that it is safe to do so and that the required safety procedures have been followed.

In the majority of situations, it is impossible to determine whether electrical equipment is live by observing it. Any investigation or test carried out by an untrained person is more likely to increase their exposure to the electrical hazard. Under no circumstances should person’s not specifically authorised attempt to investigate or test electrical equipment.
6.6.5: Monitor and review controls

Line Managers are responsible to ensure that, once the controls have been implemented, the person in charge of the work party continues to supervise the work party in accordance with the RailCorp SMS guide SMS-06-GD-0268 Working around Electrical Equipment.

If a Permit is required, the Permit Holder must also continue to monitor the tasks or work activities to make sure the conditions of any Electrical Permit is maintained at all times.

Where implemented, Safety Observers must also continually monitor the tasks or work activities to make sure all persons, plant, equipment, tools, materials or other objects do not encroach the prescribed minimum SAD.

Workers must be instructed to cease work and initiate a review of the SWMS/SWI in any of the following circumstances:

- when the control measure no longer appears to control the risk it was implemented to control
- there is a change at the workplace that is likely to give rise to a new or different work health and safety risk that the control measure may not effectively control
- a new hazard or risk is identified
- the results of consultation (e.g. during the pre-work brief) indicate that a review is necessary, or
- a Health and Safety Representative (HSR) or electrical discipline representative requests a review.

The person in charge of the work party is responsible for the following procedure.

Procedure

1. In consultation with affected workers, review the identified hazard, assess the risk(s) and determine any new and/or additional controls in accordance with the hierarchy of controls (refer to steps 6.6.2 Assess risks and 6.6.3 Determine control measures).

2. Amend the safe work practices and brief workers on the changes to the work process and/or controls (refer to step 6.6.4 Implement control measures).

Note

The decision to either amend an existing SWMS/SWI or prepare and deploy a new one will depend on the level of risk to be controlled and the complexity of the changes to be communicated (refer to SMS-06-OP-3043 06.16 Managing Risks Using Safety Work Practices).
References

SMS-06-OP-3043 06.16 Managing Risks Using Safe Work Practices
SMS-06-OP-3114 06.20 Pre-work Briefings
SMS-06-TP-4026 SWMS/SWI Template
SMS-06-FM-4163 Pre-work Briefing form
RailCorp SMS guide SMS-06-GD-0268 Working Around Electrical Equipment.pdf
RailCorp SMS guide SMS-11-GD-0244 Personnel Certifications – Electrical Authorisations

Version control

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<tr>
<td>1.0</td>
<td>First release of Sydney Trains SMS</td>
<td>01/07/2013</td>
<td>Launch of Sydney Trains SMS documents</td>
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<tr>
<td>2.0</td>
<td>Rewritten to remove duplication with RailCorp SMS guide SMS-06-GD-0268 Guide to Working Around Electrical Equipment and remove inappropriate terminology.</td>
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<td>Custodian also changed to Manager Electrical Distribution Authority.</td>
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