Switching / Operating work HV Aerial Lines and 1500V OHW

Issue date: 04/10/07
Review date: 04/10/10

SWMS number:
SMS-06-SW-0516

SWMS Name:
Switching / Operating Work High Voltage Aerial Lines And 1500v OHW

SWMS Team:
Steve Goodwin, Anne McDougal
Shane Brown, Craig Atchison
Colin Marshall, Phil Page
Alan Merritt, Eric Cheek
Mark Holmes, Kol Navidi
Michael Holt

Custodian (Position):
Business Systems Officer
Metro North Region
Michael Swadling

Assumptions:
Daylight, fine weather, planned work

Approving Authority (Position):
General Manager
Infrastructure Division

Content reviewed by Technical expert (SME) and RailCorp safety professional (position including Div/Group)

Electrical Maintenance Engineer, Illawarra

SEQ Systems Administrator

Applicable Standards, Codes of Practice and guidance:

- ESAA Guide to electrical safety systems
- WorkCover Guide; Safe Working at Heights

Plant/Equipment/Tools:

- linesmen's tools
- HV tester
- HV earths
- keys
- danger tags
- special locks
- EWP or ladder
- rescue kit
- VLL Tester
- LR Tester
- operating Sticks
- Rail connections
- Ropes
- Bridging Equipment
- Operating diagram
- Operating schedule

Records/Reporting:

- Hazard assessment form (as required)
- TEAMS 3

Permits/licences required:
WHVI or 1500v Authority
1500V special Instruction
Z609A form

PPE required:

- Standard PPE
- 185gsm 100% cotton clothing in accordance with SMS-06-SW-0538
- insulated gloves
- Hard Hats

Inspection requirements

- Electrical Testing
- Electrical test equipment calibration

Service schedule:
E00001

MIMS or METRE Ref:
n/a

Training/Qualifications required:

Authorised Traction Operator

Authorised Officer Mains

Manual Handling techniques

Number	Step	Hazard or human error (Safety/Environmental hazards identified, including physical environment, human errors, plant and equipment)	Risk ranking before controls	Control (to be Implemented to eliminate or reduce the risk to the lowest practicable level)	Risk ranking after controls	Responsibility	Applicable RailCorp documents
1	Obtain approved WHVI, 1500v Authority or Special 1500v Work instructions, from Authorised officer mains	Contact with Electricity, work on energised equipment	C+	Review documentation for accuracy and completeness	C-	WHVI / Authority/ 1500V special Instruction holder	
2	Verify that tools / operating safety equipment is fit for purpose and in date	Contact with Electricity, faulty equipment.	C+	Check tools / equipment are in date and not damaged or defective	C-	Supervisor	ENSR
	Carry out switching	Burns from sparking	C-	Verify correct switch Liase with EOC	C-	Team Member	ENSR
3		Falls from heights	C-	Use EWP if practicable according to SWI Attached climbing according to SWI Use hauling line	D	Supervisor Supervisor Team Member	SWI: Elevating Work Platforms SWI: Fall Arrest Systems (all)
		Manual Handling / Muscular Stress	C+	Manual Handling Training	C-	Team Manager	
		Electric shock	B-	Maintain clearances Check tools / equipment are in date and not damaged or defective Visual inspect switch for defects	C+	Team Member Team Member Team Member	ENSR
		Struck by falling object	C+	Establish defined drop zone Keep tools attached	C-	Supervisor Team Member	
		Bites & Stings	C+	Inspect and spray following MSDS Gloves	C-	Team Member	MSDS for insect spray
4	Prepare earths/rail connections	Manual Handling / Muscular Stress	C+	Manual Handling Training Use team lifts if practicable	C+	Team Manager Supervisor	
		Hit by flying object	C-	Tools not damaged or defective	C-	Team Member	
		Hit underground service eg Electric shock, gas inhalation,	B-	Set up permanent earths	D	Maintenance Engineer	ENSR

Number	Step	Hazard or human error (Safety/Environmental hazards identified, including physical environment, human errors, plant and equipment)	Risk ranking before controls	Control (to be Implemented to eliminate or reduce the risk to the lowest practicable level)	Risk ranking after controls	Responsibility	Applicable RailCorp documents
		explosion , fire etc	B-	Insert earth spike 600mm into ground opposite cable and close to pole	C+	Supervisor	ENSR
5	Test dead	Falls from heights	C-	Use EWP if practicable according to SWI Attached climbing according to SWI Use hauling line	D	Supervisor Supervisor Team Member	SWI: Elevating Work Platforms SWI: Fall Arrest Systems (all)
		Manual Handling / Muscular Stress	C+	Manual Handling Training	C-	Team Manager	
		Contact with Electricity	B-	Maintain clearances Check tools / equipment are in date and not damaged or defective Visual inspect switch for defects Liase with EOC	C+	Team Member Supervisor Team Member	ENSR
		Struck by falling object	C+	Establish defined drop zone Keep tools attached	C-	Supervisor Team Member	
6	Apply earths/rail connections	Falls from heights	C-	Use EWP if practicable according to SWI Attached climbing according to SWI Use hauling line	D	Supervisor Supervisor Team member	SWI: Elevating Work Platforms SWI: Fall Arrest Systems (all)
		Manual Handling / Muscular Stress	C+	Manual Handling Training	C-	Team Manager	
		Struck by falling object	C+	Establish defined drop zone Keep tools attached	C-	Supervisor Team Member	
7	Issue electrical permit / operating agreement	Contact with Electricity, work on energised equipment	A	Issue permit in accordance with ENSR	B-	Permit Issuer	ENSR
8	Cancel electrical permit/ operating agreement	Contact with Electricity, work on energised equipment	A	Cancel permit in accordance with ENSR	B-	Permit Issuer	ENSR

Number	Step	Hazard or human error (Safety/Environmental hazards identified, including physical environment, human errors, plant and equipment)	Risk ranking before controls	Control (to be Implemented to eliminate or reduce the risk to the lowest practicable level)	Risk ranking after controls	Responsibility	Applicable RailCorp documents
9	Remove earths/rail connections	Falls from heights	C-	Use EWP according to SWI if practicable Attached climbing according to SWI Use hauling line	D	Supervisor Supervisor Team member	SWI: Elevating Work Platforms SWI: Fall Arrest Systems (all)
		Manual Handling / Muscular Stress	C+	Manual Handling Training	C-	Supervisor	
		Struck by falling object	C+	Establish defined drop zone Keep tools attached	C-	Supervisor Team Member	
10	Carry out switching to restore supply	Burns from sparking	C-	Verify correct switch	C-	Team member	
		Falls from heights	C-	Use EWP if practicable according to SWI Attached climbing according to SWI Use hauling line	D	Supervisor Supervisor Team member	SWI: Elevating Work Platforms SWI: Fall Arrest Systems (all)
		Manual Handling / Muscular Stress	C+	Manual Handling Training	C-	Team Manager	
		Contact with Electricity	B-	Maintain clearances Check tools / equipment are in date and not damaged or defective Visual inspect switch for defects	C+	Team Member Team Leader Team Member	ENSR
		Struck by falling object	C+	Establish defined drop zone Keep tools attached	C-	Supervisor Team Member	

RailCorp Level 2 Risk Matrix - Regional & Local (Workplace)

		Likelihood/Frequency					
	Event Frequency	Less than once every 1000 years	Once every 100 to 1,000 years	Once every 10 to 100 years	Once every 1 to 10 years	More than once per year up to and including 10 times per year	More than 10 times per year
	Historical (Likelihood)	Unheard of in the rail industry	Has occurred once or twice in the rail industry	Has occurred many times in the rail industry, but not in NSW	Has occurred once or twice in NSW	Has occurred frequently in NSW	Has occurred frequently at specific locations
	Workplace Predictive (Likelihood)	Not expected to occur	May occur only in exceptional circumstances	Could occur at some time but not likely	You would expect it to occur at least once in the next 10 years performing similar activities	You would expect it to occur at least once this year performing similar activities	You would expect it to occur at least once this month performing similar activities
		F1	F2	F3	F4	F5	F6
Consequence		Incredible	Improbable	Remote	Occasional	Probable	Frequent
>10 Fatalities	C6	Disastrous	B-	B+	A	A	A	A
2-10 Fatalities	C5	Catastrophic	C+	B-	B+	A	A	A
1 Fatality (2-10 Major Injuries)	C4	Critical	C-	C+	B-	B+	A	A
1 Major Injury	C3	Major	D	C-	C+	B-	B+	A
1 or more Minor Injuries	C2	Minor	D	D	C-	C+	B-	B+
First aid treatment, or illness/injury not requiring treatment	C1	Negligible	D	D	D	C-	C+	B-

Extreme
High
Medium
Low

Definition for Use - Regional & Local level (Workplace)

Used for workplace hazards and safety risks that do not consider the whole of the network. Indicatively this matrix is appropriate for use where the hazards under consideration are up to 10% of the total network exposure. This includes regional and local workplace risk assessments.

As an example, the Level 2 scale would be used when examining the risk of slips, trips and falls on specific RailCorp platforms within a region or at a particular station, or the risk of fire within a depot.

There are 3 options for descriptors which can be used to determine the frequency category. One set of descriptors is provided for frequency, one for historical likelihood, and one for predictive liklihood in the workplace. Choose the most appropriate.

To score the risk, follow the steps:

1. Identify the magnitude of the credible consequence if the risk were to occur. If applicable, risks should be considered in terms of the safety (this matrix), commercial and environmental impact (using other matricies).

2. Identify the likelihood of this level of consequence occurring. (This is done after considering the effectiveness of the current controls in place)

3. Score the risk using the combination of likelihood and consequence ranking.

Note: Where there are a range of credible consequences which may lead to a different level or risks and/or where the controls may be different. It may be useful to score the risk more than once.

NOTE: Each work group or team member must sign off on the SWMS to acknowledge they have been briefed about or instructed in the SWMS

Team member name (Please print)	Team Member signature	Instructor/ Briefer name	Date	Team member name (Please print)	Team Member signature	Instructor/ Briefer name	Date