Install High Voltage equipment

Issue date: 08/04/08
Review date: 21/02/11

SWMS number:
SMS-06-SW-0996

SWMS Name:
Install High Voltage equipment

SWMS Team:
Electrical Distribution Review Team

Custodian (Position):
Electrical Services Manager, Commercial Renewals

Assumptions:
Site specific risks are addressed and assessed in pre- work briefing

Approving Authority (Position):
Safety and Quality Manager Commercial Renewals

Content reviewed by Technical expert (SME) and RailCorp safety professional (position including Div/Group)
Electrical Services Manager & SEQ Coordinator Asset Management Group Commercial Renewals

Applicable Standards, Codes of Practice and guidance:
- OH&S Act 2000
- OH&S Regulation 2001
- Rail Safety Regulation 2003
- RailCorp Network Rules & Procedures
- RailCorp Safety Management System.
- MSDS for all chemicals and hazardous Substances used on site
- Electrical Safety Instructions
- SAA Wiring Rules
- EC14 – Guide to Electrical Workers' Safety Equipment
- WorkCover NSW Plant Guide
- National Code of Practice for Manual Handling [NOHSC:2005]
- AS/NZS 1891.4 – 2000 "Industrial fall arrest systems and devices – Selection, use and maintenance"
- AS 4839 portable oxy-fuel gas systems
- AS 1674.1 – Safety in welding processes

Equipment/Plant/Tools:
- Appropriate Plant or Hand Tools
- Watercart
- Barriers, Witches hats and fencing
- Spill response kit
- Fire Extinguishers.
- Oxy equipment
- Gases - Insulating
- Oil type – Transformer
- Hazardous Substances & Dangerous goods
- Lighting Source

Records/Reporting:
- Worksite Protection Plan
- Pre-work Brief
- Electrical Test Tags
- Hot Work Permit (During Total Fire Ban)
- Fire Brigade
- Daily Plant Inspections
- Electrical Permits
- Services search diagrams
- Site layout documentation

Permits/licences required:
- Electrical Permit Holder
- Traffic Controller
- Authorised Electrical Staff
- Vehicle Loading Crane Certificate

Personal Protective Equipment required:
- Safety Boots
- High Visibility Vests
- Hardhats
- Protective Clothing
- Safety Glasses

And as specified below.

- Fall Arrest Devices
- Gloves
- During all Site Works a FIRST AIDER MUST be Present

Inspection requirements
Nil

Service schedule:
Nil

MIMS or METRE Ref:
Nil

Training/Qualification required:
- Construction Industry Induction
- Track Safety Awareness or

RISI (Rail Industry Safety Induction)

And as specified below.

- Electrical Awareness
- Authorised Electrical Staff

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1	Supervisor undertakes site pre-work briefing and gives local induction.	Staff not Listening to Pre-Work Brief	B -	Identify all hazards, Staff to ensure they are properly Briefed as to risks involving Worksite.	D	Team Leader / Work Group Leader / All Staff	Pre-Work Briefing SMS-06-FM-0163
2	Supervisor verifies competence of personnel doing the task and currency of permits for work.	Expired Competency Cards & Permits, Unqualified type of Personnel for the Task.	B -	Visual Inspection of Personnel Competency Cards & Currency of Permits	D	Team Leader / Work Group Leader	Safety Training & Competence SMS-11-SR-0128
3	Review SWMS and confirm it is current.	Use of a SWMS that is out of date	C -	Ensure SWMS is current and up to date.	D	Team Leader / Work Group Leader	SWMS & SWI's SMS-06-PR-0023
4	Verify that plant and equipment for the task is fit-for-purpose.	Plant & Equipment kept in poor working condition	C +	Conduct a Daily Plant Checklist	D	All Staff	Plant SMS-06-GD-0225
5	Evaluate the environment	Uneven ground	C-	Level up ground. Clear pathways	D	Team Leader / Work Group Leader / All Staff	Environmental Plan. Uneven Surfaces SMS-06-FM-0163
		Undergrowth	C-	Clear only excess undergrowth as required	D		PPE- SMS-06-GD-0323 Working Outdoors SMS-06-PR-0104 Irritation from Dust SMS-06-SW-0535
		Water obstacle/ drain	C-	Redivert water, pump away or install drain	D		
		Dust	C-	Water down area, keep vehicular traffic down	D		
		Ultra violet injuries	B-	PPE Sunscreen, hat sunglasses	D		
		Venomous bite & stings	C-	Remove undergrowth. Take care when opening, lifting items	D		
		Needles	C-	Inspect work area. Remove undergrowth. Take care when opening, lifting items.	D		Needle Sticks SMS-06-FM-0535
		Trains	B+	Relevant Work Site Protection and Protection officer for site	D	Protection Officer.	Network rules and Procedures, Safety Management SMS-01-PO-0126
		Insufficient Lighting	B+	Light up worksite	D	Team Leader / Work Group Leader	Plant & Equipment Safety SMS-11-GD-0243

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		Roadways	C-	Relevant Work Site Protection and Protection officer for site	D	Traffic Controller	Traffic Plan, Work-on/near Roads SMS-06-GD-0372
6	Locate services	Damage to services	B+	Services searches, diagrams on site	D	Team Leader / Work Group Leader	Services Search Checklist SMS-06-FM-0384
				Approved water exposure of services			
				Hand dig to expose services			
7	Clear the work area / site	Electric Shock Unauthorised work	B+	Site layout documented	D	Authorised Person. Team Leader / Work Group Leader	Electrical Equipment SMS-06-GD-0268 Electrical Permits SMS-06-EN-0577
			A	Permits and authorised work	D		
8	Site set up	Manual Handling	C+	Correct technique / site specific PPE	D	All Staff	Manual Handling SMS-06-GD-0001
		Plant moving	C+	Site specific PPE	D	Team Leader / Work Group Leader / All Staff	PPE- SMS-06-GD-0323 Plant & Equipment Safety SMS-11-GD-0243 Pre work Briefing SMS-06-FM-0163 Work near Mob. Plant SMS-06-GD-0225
				Lookouts			
				Pre Work Brief			
		Adjacent equipment	C-	Permits and authorised work	D		Electrical Equipment SMS-06-GD-0268
				Lookouts	D		
		Dangerous goods	C+	Quarantine area	D		Hazardous Substances SMS-06-GD-0199
		Temporary power	C-	See Low Voltage SWMS	D	Authorised Person. Team Leader / Work Group Leader	Electrical Equipment SMS-06-GD-0268
9	Mount, stand, erect equipment	Moving plant	C+	Site specific PPE	D	Team Leader / Work Group Leader / All Staff	PPE- SMS-06-GD-0323 Pre work Briefing SMS-06-FM-0163 Plant & Equipment Safety SMS-11-GD-0243
				Lookouts			
				Pre Work Brief			

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		Electric shock	C+	Permits and authorised work	D	Authorised Person. Team Leader / Work Group Leader	Electrical Permits SMS-06-EN-0577 ESI'S
				Touch potentials identified			Electrical Equipment SMS-06-GD-0268 ESI'S
				Design distances met			
9	Mount, stand, erect equipment (Cont…..)	Suspended loads	B+	Identify danger area, moving radius of loads	D	Hiab Operator. Team Leader / Work Group Leader / All Staff	Lifting Equipment SMS-16-FM-0089
		Injury from plant / tools	B+	Tagged tools and inspected plant	D		Plant & Equipment Safety SMS-11-GD-0243
		Work aloft	B+	Pre work brief and PPE	D	Team Leader / Work Group Leader / All Staff	Working at Heights SMS-06-GD-0240
		Manual handling	C+	Correct technique / site specific PPE	D		Manual Handling SMS-06-GD-0001
		Cuts and abrasions	B+	PPE as pre work brief	D		PPE- SMS-06-GD-0323
		Oil type used (PCB's)	B-	PPE and identification	D		PPE- SMS-06-GD-0323 Hazardous Substances SMS-06-GD-0199
		Oil contamination / spill	B-	Response kit for size of the work. Environmental paperwork and notices	D		
10	Padmount & Substation Environment	Suspended loads	B+	Identify danger area, moving radius of loads	D	Hiab Operator. Team Leader / Work Group Leader / All Staff	Lifting Equipment SMS-16-FM-0089
		Electric shock	C+	Permits and authorised work	D	Authorised Person. Team Leader / Work Group Leader	Electrical Permits SMS-06-EN-0577 ESI'S Electrical Equipment SMS-06-GD-0268
				Touch potentials identified			
				Design distances met			
		Plant moving	C+	Site specific PPE	D	Team Leader / Work Group Leader / All Staff	PPE- SMS-06-GD-0323 Pre work Briefing SMS-06-FM-0163 Plant & Equipment Safety
				Lookouts			

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				Pre Work Brief			SMS-11-GD-0243 Work near Mob. Plant SMS-06-GD-0199
		Manual handling	C+	Correct technique / site specific PPE	D		Manual Handling SMS-06-GD-0001
		Injury from plant / tools	B+	Tagged tools and inspected plant	D	Team Leader / Work Group Leader / All Staff	Plant & Equipment Safety SMS-11-GD-0243 Electrical Equipment SMS-06-GD-0268
10	Padmount & Substation Environment (Cont……)	Oil type used (PCB's)	B-	PPE and identification	D	Team Leader / Work Group Leader / All Staff	PPE- SMS-06-GD-0323 Hazardous Substances SMS-06-GD-0199 Safety Manuals
		Oil contamination / spill	B-	Response kit for size of the work. Environmental paperwork and notices	D		
		Gases - Insulating	A	MSDS and manufacturer instructions	D	Team Leader / Work Group Leader	Gas Leak SMS-15-PR-0245

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11	Demolition / removal	Electrical contact	A	Permits, authorised work	D	Authorised Person. Team Leader / Work Group Leader	Electrical Permits SMS-06-EN-0577
		Asbestos materials	A	Identification, MSDS, relevant permits	D	Team Leader / Work Group Leader	Hazardous Substances SMS-06-GD-0199
		Oxy equipment -explosion	A	MSDS for gases, plant inspections	D	Oxy-Acetylene Operator, Team Leader / Work Group Leader / All Staff	AS-4839 (Safe use of Oxy-fuel Gas Sys) Storage/Handling of Gases SMS-06-SW-0196 Fire Procedures SMS-06-PR-0329
		Oxy equipment -fire	B+	Extinguishers or water supply	D		
		Oxy equipment - burns	B+	PPE as pre work brief	D	Team Leader / Work Group Leader	
		Leaving tools behind	C-	Visual inspections	D		House Keeping SMS-16-FM-0069
		Manual handling	C+	Correct techniques, site specific measures as Pre Work Brief	D	All Staff	Manual Handling SMS-06-GD-0001
		Materials remaining	C-	Visual inspections	D	Team Leader / Work Group Leader	House Keeping SMS-16-FM-0069
		Plant moving	C+	Site specific PPE	D	Team Leader / Work Group Leader / All Staff Competent person.	PPE- SMS-06-GD-0323 Pre work Briefing SMS-06-FM-0163 Plant & Equipment Safety SMS-11-GD-0243 Work near Mob. Plant SMS-06-GD-0225
				Lookouts			
				Pre Work Brief			
☐	Additional Site specific hazards						

Legend

PWB – Pre Work Brief
ESI's – Electrical Safety Instructions
MSDS – Material Safety Data Sheet
PPE – Personal Protective Equipment
RDELE – Renewals Distribution Electrical
SWMS – Safe Work Method Statement
IR – Insulation Resistance
PCB's - Polychlorinated Biphenyls

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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

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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.

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