Electrical Installation and Removal of Signals

Issue date: 10/04/08
Review date:20/02/11

SWMS number:
SMS-06-SW-1086

SWMS Name:
Electrical Installation and Removal of Signals

SWMS Team:
Signal Review Team

Custodian (Position):
Signal Services & External Resources Manager

Assumptions:
- Site specific risks are addressed and assessed in pre- work briefing
- Prior to undertaking any activity, the risk of electric shock shall be assessed and appropriate control measures implemented as per TMG J042 (Safety issues for signalling personnel)

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

Content reviewed by Technical expert (SME) and RailCorp safety professional (position including Div/Group)
Signal Services & External Resources 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.
- Signalling Maintenance Procedures J Manual
- Technical Maintenance Plan
- Signalling Construction Specifications
- Safety issues for signalling personnel TMG-J042
- Air Reticulation Systems SC09-20-00-00-SP
- MSDS for all chemicals and hazardous Substances used on site
- EC14 – Guide to Electrical Workers' Safety Equipment

Equipment/Plant/Tools:
- Generators & Power Tools, RCD Unit
- Signalling Equipment
- Hand Tools, Spanners
- Crimpers – Ratchet Cable Cutter, Cable Sheath
- Ladders
- Megger and Test leads
- Fuels

Records/Reporting:
- Worksite Protection Plan
- Pre-work Brief
- Fuel and Oil MSDS
- Daily Plant Checklist
- Electrical Tool Test
- Environmental Protection plan

Permits/licences required:
Nil

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)

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

And as specified below.

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

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Electrical Installation and Removal of Signals

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	Job step to be completed In accordance with (name associated documentation)
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	Access , Egress and Working on site	Hit by Train	A	Pre-work Brief including Worksite Protection Plan, Site Induction and Inspection, Confined Spaces if required Ensure adequate communication in place prior to commencement to work. Persons should follow Safe Access Paths, identified prior to commencement of work.	C+	Worksite Protection Officer	Network Rules, Safety Management SMS-01-PO-0126
		Electric Shock	A	Prior to undertaking any activity on site, the Risk of Electric shock shall be identified and assessed, with Control measures implemented as per TMG J042	C+	Signal Elec. (min)	TMG J042 and Electrical Risk Assessment form
		Slips, trips and falls/Site Access	A	Pre-work Brief to identify potential hazards Persons should follow Safe Access Paths, identified prior to commencement of work.	C+	Worksite Protection Officer/all staff	Uneven Surfaces SMS-06-FM-0163
		Injury from moving road vehicles and plant equipment	A	Provide a Site Plan detailing safe access paths, parking and location of facilities	C-	Worksite Protection Officer/all staff	Site Safety Plan

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Risk of electric shock shall be assessed and appropriate control measures implemented before commencing work							
6	Installing / Removing Signal Components	Restricted Spaces	B+	Assess work area as per WSM A10-02-I109	C-	All staff	Isolated Working SMS-06-GD-0297
		Heights – Limit carrying load -Injury from materials/tools falling from heights.	A	Correct PPE (Safety harness), suitable lifting procedures and use of exclusion zone	C-	All Staff	PPE SMS-06-GD-0323
		Personal Injuries /Strains – Hands, Eyes, Cuts, abrasions	A	Safety glasses and use of approved safety gloves, (Kevlar when using sharp items)	C-	All staff	PPE SMS-06-GD-0323
		Injury from Pinch Points	B+	Manufacturers specification / SMS Manual/identify by signage, offending part	C+	All Staff	Manufacturers Specs/SMS manual
7	Generators & Power Tools	Injury from Electric Shock from Generators/Power tools	A	Inspect and check equipment parts, electrical cables (Valid Test and Tag Label), RCD Units fitted (Honda Inverter Type Excluded)	C+	All staff	Equipment Operating Manual, Electrical Equipment SMS-06-GD-0268
		Injury from fumes, fuels	B+	Appropriate care with placement of fuels/oils Ensure well ventilation from exhausts and fumes, Spill kit on hand	C-	All Staff	Hazardous Substances SMS-06-GD-0199 MSDS
8	Wiring – installation / Disconnection or termination (including fittings)	Injury from Hand Tools/ Cuts from cable sheaths – Cuts from knives	A	PPE –Kevlar Gloves, Use Correct Hand tools appropriate for task, and in accordance with Manufacturers recommendations. Use Cable Strippers instead of knives	C-	All Staff	PPE SMS-06-GD-0323 Manufacturers Specs.
		Injuries from Crimpers – Ratchet Cable Cutter	B-	Brief Team on use of Quick Release Mechanism -	D	All Staff	Operating Manual
9	Test and Set to Work -Insulation Test -Lamp Test -Focusing /Function Test	Falling from and Working on Ladders/Heights	A	Follow procedures set out in Ladder /Step Ladders SMS-06-SW-0264 – and where applicable, wear appropriate fall arrest device	C-	All Staff	Ladder /Step Ladders SMS-06-SW-0264 Working at Heights SMS-06-GD-0240

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		Hand Tools – Spanners	B+	Use equipment/tools appropriate for task	C+	All Staff	Manufacturers Specs
		Electric Shock from Megger Test leads/ Signal power Supply/ Exposed Terminals	A	Use the Australian Standard Testing Equipment (TMG-J042 Sec 9), approved insulating covers.	C+	All Staff	TMG J042/Electrical Risk Assessment form
		Injury from plant	A	Use Barrier or Plant Spotter/Signs	C-	All Staff	Operator instructions / SMS

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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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