Installation of Signals – Mechanical & Colour Light

Issue date: 11/04/08
Review date: 19/02/11

SWMS number:
SMS-06-SW-1012

SWMS Name:
Installation of Signals – Mechanical & Colour Light

SWMS Team :
Signal Review Team

Custodian (Position):
Signal Services & External Resources Manager

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)
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
- Signalling Maintenance Procedures
- Technical Maintenance Plan
- Signal Engineering Standards
- RailCorp Safety Management System.
- MSDS for all chemicals and Hazardous substance used on site
- City Region – Tunnel Emergency Evacuation Steps
- City Region – Site Safety Rules
- WorkCover NSW Plant Guide
- EC14 – Guide to Electrical Workers' Safety Equipment
- AS/NZS 2865:2001 Safe working in a confined space
- National Code of Practice for Manual Handling [NOHSC:2005

Equipment/Plant/Tools:

- Vehicle Crane, guide ropes, mobile plant,
- Elevated Work Platforms
- Shovels, Picks, Bars, Wheelbarrow, Concrete Mix, Hammers
- Generator, RCD Unit
- Power Tools, Spanners, Wrenches
- Fuels
- Barriers, Fencing
- Watercart
- Oxygen Monitor, Catalytic Converters, Electric Fans (Tunnel Areas)
- GRN Radios

Records/Reporting:

- Worksite Protection Plan
- Pre-work Brief
- Electrical Test Tags
- Services searches diagrams
- Signalling Design/ Construction Standards
- Electrical Tool Test Tags
- Electrical Permits

Permits/Licences required:

- Vehicle Crane certificate
- Confined Space Certificate
- Elevated Work Platform Certificate

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
- Type 1 Respirators, Dust Masks (Tunnel Areas)
- Fall Arrest Device.
- During all Site Works a FIRST AIDER MUST be Present

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
	WARNING	*The Following Precautions are to be undertaken for when using Elevated Work Platforms / Plant under Overhead Power Lines as in Activity 5 & 8 :* • The Operator or other person in control of the Worksite must take reasonable care to inspect the workplace to identify Potential Hazards with Live Overhead Power Lines • All Overhead Power Lines are to be treated as Live unless the Elevated Work Platform / Plant Operator has received an Access Authority from the Electrical Operator • All EWP's / Plant whose Design envelope is within the Approach Distances must be controlled by Safe Systems of Work. i.e. : Height Restrictors / LCR32 Observer • Relevant Information can be obtained from the Elevating Work Platforms. SMS-06-SW-0310 or on the WorkCover Website : Work Near Overhead Power Lines Code of Practice 2006					
5	Access , Egress and Working on site	General					
		Hit by Train	A	Pre-work Brief including Worksite Protection Plan, Site Induction and Inspection	C+	Worksite Protection Officer	Network Rules & Procedures, Safety Knowledge Management SMS-18-SR-0098
		Slips, trips and falls	C-	Pre-work Brief to identify potential hazards	D	Worksite Protection Officer	Workplace Risk Management SMS-06-PR-0104

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		Injury from vehicles and plant equipment	B+	Provide a Site Plan detailing safe access paths, parking and location of facilities	C-	Worksite Protection Officer	Plant SMS-06-GD-0225
		Injury from striking Overhead Wiring.	A	Ensure Permit to Work has been obtained.	C+	Authorised OH Line Worker	Electrical Permits SMS-06-EN-0577
5	Access, Egress and Working on site (Cont….)	Tunnels					
		Personnel injury from Fumes/contamination of atmosphere while in Tunnels	B-	Continuous air containing appropriate levels of oxygen is available with an air velocity of no less than 10 m/Min. Atmospheric monitoring while working	C+	All staff	City Region Hazard Summary - Part 2 City Tunnels
		Lack of Communication while in Tunnels	C-	GRN Radios to be used.	D	All staff	City Region Hazard Summary - Part 2 City Tunnels Safety Communication. SMS-10-SR-0040
		Injury from Placement and use of equipment in tunnels	C+	Use of PPE – Hearing protection, Hand Protection Operators to be aware of extent safe-working area Equipment fitted with Catalytic Converters. No Petrol driven engines to be used in tunnels. LPG Bottles to be changed outside restricted space. All mobile plant shall have a flashing/rotating light visible from the front and rear. Use of Hydraulic equipment were appropriate	D	All staff	City Region Hazard Summary - Part 2 City Tunnels PPE SMS-06-GD-0323

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		Injury from debris or dust while in Tunnels	B-	Exclusions zone for workers not involved in tasks Wear Type 1 Respirators Water down materials Use of PPE – Dust Masks	D		
6	All Job Steps	Falling from Elevated platforms or Working at Heights	B+	Use of Fall Arrest Device. Safety checked and inspected device.	C-	Height Safety Training Card	Working at Heights SMS-06-GD-0240 PPE SMS-06-GD-0323
7	Install Signal Base	Injury to Back from use of Shovels, Picks, Bars etc	B-	Use of PPE – Gloves Ensure tools are in good condition Do not overexert.	D	All Staff	PPE SMS-06-GD-0323
		Injury from Confined Spaces, Suffocation, Poisoning, Electric Shock	B+	Only Certified persons allowed in area.	C-	Confined Space Training	Confined Spaces SMS-06-GD-0035
8	Placing Signal Post & Fittings into place	General Process Hazards					
		Hand Injury from placing Signal onto / into Signal Base	B-	Use of PPE – Gloves	D	All Staff,	PPE SMS-06-GD-0323
		Electric Shock from rails/equipment/plant due to difference in potential	A	Ensure signalling equipment is electrically isolated. Signal Electrician to isolate.	C+	Signal Electrician / Authorised Officer	Safety Issues for Signalling Personnel TMG J042
8	Placing Signal Post & Fittings into place (Cont…..)	Injury while Load / unload Equipment	B+	Ensure workers are kept well clear of lift path. Use competent crane operators Maintain control using guide wires/ropes	C-	Vehicle Crane certificate Holders	Lifting Equipment Inspection SMS-16-FM-0089
		Concrete Mixing and Pouring					
		Strain Injuries from lifting/moving cement, concrete	B+	Use of PPE – Eye protection Backsafe techniques	C-	All staff	PPE SMS-06-GD-0323 Backsafe Training Manual
		Breathing difficulties from concrete dust	B+	Use of PPE-Dust Masks	C-	All staff	PPE SMS-06-GD-0323
		Generators and Power Tools					

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		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, Work Around Elect. Equip. SMS-06-GD-0268
		Injury from fumes, fuels	C+	Appropriate care with placement of fuels/oils Ensure well ventilation from exhausts and fumes, Spill kit on hand	D	All staff	Hazardous Substances SMS-06-GD-0199 MSDS
9	Securing Signal Post to Signal Base, Adjustments of Signal Post Fittings	Eye/ Hand Injury	B-	Use of PPE – Eye protection, Gloves	D	All Staff	PPE SMS-06-GD-0323
		Cuts and Abrasions	B-	Use of PPE – Gloves	D		
10	Preliminary Sighting & Focus Test (non specific) prior to Commissioning	No Risks Identified				All staff	
11	Install White Cross at front of Signal (non commissioned signal)	Injury from lifting and placement of White Cross	C-	Use Correct Backsafe Techniques.	D	All Staff	Signalling Design Standards Manual Handling Guide SMS-06-GD-0001
12	Installation of Signal Phone	Injury from striking underground services	B+	Services search diagrams. Check with Utilities.	C-	Work Group Leader	Signalling Design/ Construction Standards, Services Search Checklist SMS-06-FM-0384
		Injury to Back from use of Shovels, Picks, Bars etc	B-	Use of PPE – Gloves Ensure tools are in good condition Do not overexert.	D	All Staff	PPE SMS-06-GD-0323
13	Installation of Warning light covers	Eye/ Hand Injury	B-	Use of PPE – Eye protection, Gloves	D	All Staff	PPE SMS-06-GD-0323
		Cuts and Abrasions	B-	Use of PPE – Gloves	D		

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

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.