Installation and Maintenance of Electric Switch Machine

Issue date: 11/04/08
Review date: 26/02/11

SWMS number:
SMS-06-SW-1015

SWMS Name:
Installation and Maintenance of Electric Switch Machine

SWMS Team :
Signal Review Team

Custodian (Position):
Signal Services & External Resources Manager

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

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 / Renewal

Approving Authority (Position):
Safety and Quality Manager 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
- Safe use of Oxy-fuel Gas Sys –

Equipment/Plant/Tools:

- Vehicle Crane, guide ropes, Correct Weighted Load of Chains
- Electric Planer, Adze, Electric Circular Saw, Grinder
- Oxy cylinders/torches, Flint Gun, Tongs
- Fire extinguisher
- Spanners, Hammers & Job Specific Hand Tools
- Chainsaw, Fuels
- Chocks and Point Clips
- Barriers, Fencing, Watercart
- Bars, Shovels, Picks
- Oxygen Monitor, Catalytic Converters, Electric Fans
- GRN Radios

Records/Reporting:

- Worksite Protection Plan
- Pre-work Brief
- Electrical Test Tags
- Hot Work Permit (During Total Fire Ban)
- Fire Brigade
- MSDS for chemicals
- Technical Maintenance Plan

Permits/Licences required:

- Rough Cutters Ticket
- Vehicle Crane certificate
- Certificate of Competency Chainsaw Safety

Personal Protective Equipment required:

- Safety Boots
- High Visibility Vests
- Hardhats
- Protective Clothing
- Safety Glasses

And as specified below.

- Gloves
- Hearing Protection
- Welding Helmet, Spats

• AS-4839 • EC14 – Guide to Electrical Workers' Safety Equipment • National Code of Practice for Manual Handling [NOHSC:2005] • AS 2727-1997 Chainsaws - Guide to safe working practices • AS 2726.1-2004 Chainsaws - Safety requirements - Chainsaws for general use • AS 1674.1 – Safety in welding processes	**Inspection requirements** Nil	**Service schedule:** Nil **MIMS or METRE Ref:** Nil	**Qualification required:** • Construction Industry Induction • Track Safety Awareness or RISI (Rail Industry Safety Induction)	• Face Guard • Dust Masks • During all Site Works a FIRST AIDER MUST be Present

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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	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
		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 Risk Assessment SMS-06-GD-0403
6	Dig hole under points timbers	Injury from use of hand tools (shovel) - splinters	C-	Use of PPE-Gloves. Ensure tools are in good condition.	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
		Injury from Twisting strain/ sprain	C+	Use correct techniques. do not over exert	D	All staff.	Manual Handling Guide SMS-06-GD-0001

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 CAUTION		*The Following Precautions are to be undertaken for when working about Turnouts as in Activity 7 & 8 :* • Ensure that Switch Gap Chock is in place to stop switch from closing onto bodily parts. e.g. Hands or Fingers. • No person is to remove Switch Gap Chock until all Staff are clear from work area unless Authorized by the Team Leader or Work Group Leader. • Note: Track Mounted Vehicles are to be propelled through the Worksite after Liaising with the Worksite Protection Officer					
7	Clean out ballast between switch and stockrail	Cuts to hands from Ballast	C-	Use of PPE-Gloves.	D	All staff.	PPE SMS-06-GD-0323
		Crush	B+	Chock, slip and secure switches	D		
		Splinters from shovel	C-	Use of PPE-Gloves	D		
8	Install F.P.L / Roding	General Process Hazards					
		Strain back injuries	B-	Keep back straight. Team lift for heavy items	C-	All staff.	Manual Handling Guide SMS-06-GD-0001
		Injury while Loading / Unloading Equipment	B-	Ensure workers are kept well clear of lift path. Use competent crane operators Use guide ropes if required	C-	Vehicle Crane certificate Holders	Lifting Equipment Inspection SMS-16-FM-0089
		Injury using Adze, Planers causing, woodchips, Splinters, cuts etc	C+	Correct use of Electric Tools Valid Tag and Tested label Handle Adze with Extreme Care Check and Re-Check measurements Use of PPE-Gloves, Hearing Protection	D	Work Group Leader, All Staff	PPE SMS-06-GD-0323 Operating Manual
		Crush injuries	B+	Keep clear of moving Points.	D	All staff.	PPE SMS-06-GD-0323
		Chainsaw Operation					
		Injury from Chainsaw blade and debris	B+	Only operator to be in local vicinity Correct use of chainsaw PPE – Gloves, Eye protection, Hearing protection	D	Certificate of Competency Chainsaw Safety,	PPE SMS-06-GD-0323 Operating Manual

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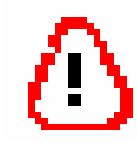
		Injury from Vibration Noise	C-	Use of PPE – Gloves and Hearing protection	D	All Staff	PPE SMS-06-GD-0323
	 WARNING	*The Following Precautions are to be undertaken for when using Hot Works as in Activities 9 during Total Fire Bans:* • An Hot Works Permit must be Issued before Work tasks are to be Performed • The Welder or other person in control of the Worksite must take reasonable care to inspect the workplace to identify Potential Fire Hazards • All Fire Hazards are to be removed Prior to commencing Welding Tasks • Fire Fighting Equipment must be on Hand at the Worksite e.g. Watercart, Knapsacks, Fire Extinguishers • (Hot Works in Progress) Warning Signs are to be placed at Appropriate locations Hot Work SMS-06-PR-0329					
9	Install & secure machine with hold down bolts	General Process Hazards					
		Injury from Electric Shock from Generators/Power tools	A	Inspect and check equipment parts, electrical cables (Valid Test and Tag Label), RCD Units fitted (General Inverter Type Excluded)	C-	All staff	Equipment Operating Manual, Work Around Elect. Equip. SMS-06-GD-0268
		Strain from lifting/moving equipment	B-	Backsafe lifting technique	C-	All staff	Manual Handling Guide SMS-06-GD-0001
9	Install & secure machine with hold down bolts (Cont…..)	General Welding Hazards					
		Burns from Hot objects Flashes	B+	Use of PPE – Welding Helmet, Gloves, Spats Use tongs when handling hot objects	C-	Work Group Leader & the Qualified Airline Fitter carrying out task Hot Work Permit (if Fire Ban) Certified persons to operate	PPE SMS-06-GD-0323 Hot Work SMS-06-PR-0329
		Fire	B+	Ensure fire protection measures based on risk assessment Hot Work Permit (if Fire Ban)	C+		Site Incident Response Procedures SMS-15-PR-0245 Hot Work SMS-06-PR-0329
		Oxy Acetylene Welders					

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		Explosions from leaking hoses and damaged equipment	B+	Visually check equipment MSDS on chemicals Flint igniters	C+		AS-4839 (Safe use of Oxy-fuel Gas Sys) Storage/Handling of Gases SMS-06-SW-0196
		Breathing difficulties from fumes	B-	Ensure well ventilated area Use of PPE – Dust Masks MSDS on chemicals	C-		PPE SMS-06-GD-0323
		Application of Protective Coatings					
		Injury from grinders during surface preparation	B-	Use of PPE – Eye protection and Hand protection	D	All staff	PPE SMS-06-GD-0323
		Injury from sanding dust and fumes	C+	Use of PPE – Masks, Gloves	D		
10	Test & Adjust.	Crush injuries	B+	Keep clear of moving Points. Use of PPE - Gloves.	D	Signal Ganger /Work Group Leader / Team Leader.	PPE SMS-06-GD-0323

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.