Minor Repairs and Upgrading to Signal Airline

SWMS Number:
SMS-06-SW-1001

SWMS Name:
Minor Repairs and Upgrading to Signal Airline

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 stem.
- MSDS for all chemicals and hazardous Substances used on site
- Australian Airline Standards AS4343-2005
- Australian Pressure Equipment AS3788-2001
- Safety in welding & allied processes (Part 2-Electrical) AS-1674.2
- Approval & Test Specifications for Electric Arc Machines AS/NZS-3195

Equipment/Plant/Tools:
GRN Radios
Vehicles and plant equipment
Hydraulic equipment
Bonding leads
Plant and Machinery fitted with Catalytic Converters.

- Electrical cables
- RCD Units
- LPG
- Air monitoring equipment

Records/Reporting:

- Worksite Protection Plan
- Pre-work Brief
- Electrical Test Tags
- Hot Work Permit (During Total Fire Ban)
- Fire Brigade
- Site Plan
- Signalling Design Standards
- Daily Plant Checklist
- MSDS on chemicals

Permits/Licences required :

- Welding / Rough Cutters Ticket
- Vehicle Crane certificate
- Height Safety Training Card
- Confined Spaces Ticket
- Airline Fitters

Inspection requirements
Nil

Service schedule:
Nil

Training/Qualification required:

- Construction Industry Induction rack 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.

- Type 1 Respirators
- P2 Dust Masks
- Welding Helmet
- Welding Spats
- During all Site Works a FIRST AIDER MUST be Present

• Safe use of Oxy-Fuel Gas Sys- AS4839 • City Region – Tunnel Emergency Evacuation Steps • City Region – Site Safety Rules • EC14 – Guide to Electrical Workers' Safety Equipment • AS/NZS 2865:2001 Safe working in a confined space		**MIMS or METRE Ref:** Nil		

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	C+	Worksite Protection Officer	Network Rules & Procedures, Safety Knowledge Management SMS-18-SR-0098
		Slips, trips and falls	B -	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 SMS-06-GD-0225
6	Accessing, Working and Using Plant/Machinery in Tunnels	Personnel injury from Fumes/contamination of atmosphere	B -	Continuos air containing appropriate levels of oxygen is available with an air velocity of no less than 10 m/Min. Atmospheric monitoring while working	D	All staff	City Region Hazard Summary - Part 2 City Tunnels
		Injury from debris or dust	C +	Exclusions zone for workers not involved in tasks Wear Type 1 Respirators Water down materials Use of P2 Dust Masks	D	All staff	City Region Hazard Summary - Part 2 City Tunnels PPE SMS-06-GD-0323
		Striking Overhead Wiring	B -	Maintain clearance at all times. Isolate power	D	All staff	City Region Hazard Summary - Part 2 City

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		Lack of Communication	B -	GRN Radios to be used.	D		Tunnels
		Injury from Placement and use of equipment	C +	Operators to be aware of extent safe-working area. Plant and Machinery 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.	D	All staff	City Region Hazard Summary - Part 2 City Tunnels
6	Accessing, Working and Using Plant/Machinery in Tunnels (Cont…)	Hearing Damage	C +	Use of ear plugs db rating 25 or ear muffs class 5 Use Hydraulic equipment. Have silencers fitted	D	All staff	City Region Hazard Summary - Part 2 City Tunnels PPE SMS-06-GD-0323
7	Repair and Upgrade airline as required	General Process Hazards					
		Eye, Hand, Hearing injury caused by Airline blow out under pressure	B+	Ensure that air supply is isolated before commencing any work. Use of ear plugs db rating 25 or ear muffs class 5 Hearing protection,medium impact Eye protectio	D	Qualified Airline Fitter.	PPE SMS-06-GD-0323
		Striking Underground service	B+	Dial B4 you dig DSS Service Searches	C -	Team Leader	Excavation & Earthworks SMS-06-GD-0378
		Injury or Strain while Loading / Unloading Equipment	C+	Ensure workers are kept well clear of lift path. Use competent crane operators Maintain control using guide ropes Backsafe Techniques or Team lift	D	Vehicle Crane certificate Holders	Lifting Equipment Inspection SMS-16-FM-0089 Backsafe Training Manual
		Touch potential between airline structures, pipes etc	B+	Warn personnel Use of PPE – Gloves and Long Sleeve shirts Bond out section using suitable bonding leads	D	All staff	Safety Issues for Signalling Personnel TMG J042 PPE SMS-06-GD-0323
		Breathing, skin and eye irritation from use of chemicals (lubricants)	C -	MSDS on chemicals. Instruct workers on safety precautions for use Use of identified PPE	D	All Staff	

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		Confined spaces hazards from Gases when pumping out pits.	B+	Use of monitoring equipment and retrieval equipment and stand-by persons	D	Workcover confined space training	Confined Spaces SMS-06-GD-0035
		Falling from Elevated platforms or Working at Heights	C+	Use of Fall Arrest Device. Safety checked and inspected device.	D	Height Safety Training Card	Working at Heights SMS-06-GD-0240 PPE SMS-06-GD-0323
		Application of Protective Coatings					
		Injury from grinders during surface preparation	B -	Ensure work area is clear of personnel and chemicals	D	All staff	PPE SMS-06-GD-0323 Operating Manual
		Injury from sanding dust and fumes	B -	P2 masks portable extraction units for prolonged works	D	All staff	PPE SMS-06-GD-0323
		Concrete Mixing and Pouring					
		Strain Injuries from lifting/moving cement, concrete chemical burns	B+	medium impact Eye protection long sleeved shirts gloves Backsafe techniques Use concrete mixers /line pumps for placement of concrete	D	All staff	PPE SMS-06-GD-0323 Manual Handling Guide SMS-06-GD-0001
		Breathing difficulties from cement, concrete dust	B+	Use of P2 Dust Masks	D	All staff	PPE SMS-06-GD-0323
7	Repair and Upgrade airline as required (Cont…)	Generators and Power Tools					
		Injury from Electric Shock from Generators/Power tools	B+	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
		Strain from lifting/moving equipment	B+	Backsafe lifting technique team lift Mechanical lifting devices bobcat hiab truck	D	All staff	Manual Handling Guide SMS-06-GD-0001

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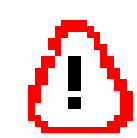
		Ear, Hand, Eyes Ears threading machine	C+	Clear space around machine MSDS for cutting oil safety glasses with side shield contact lenses pose a special hazard	D	All Staff	PPE SMS-06-GD-0323
		Injury from fumes, fuels	C+	Appropriate care with placement of fuels/oils Ensure well ventilation from exhausts and fumes, Spill kit on hand	D	All Staff	Hazardous Substances SMS-06-GD-0199 MSDS
8	Use of Chemical Anchors	Possible eye and skin problems / poisoning	C+	Ensure chemicals handled in accordance with manufacturers MSDS's PVA gloves wrap around eye protection	D	All Staff	PPE SMS-06-GD-0323 MSDS for Chemical
	 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	Welding Cutting or Brazing on site Oxy Acetylene or Electric Arc	General Welding Hazards					
		Burns from Hot objects Flashes	C+	Use of PPE – Welding Helmet, Gloves, Spats Use tongs when handling hot objects Welding screens and welding helmets	D	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
		Fire	C+	Ensure fire protection measures based on risk assessment Hot Work Permit (if Fire Ban)	D		Site Incident Response Procedures SMS-15-PR-0245 Hot Work SMS-06-PR-0329
9	Welding Cutting or Brazing on	Oxy Acetylene Welding cutting and Brazing				Work Group	

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	site Oxy Acetylene or Electric Arc (Cont……..)	Explosions from leaking hoses and damaged equipment	C+	Visually check equipment Cotton or leather gloves 100% cotton clothing or fire resistant Long Flint igniters Flash back arrestors fitted	D	Leader & the Qualified Airline Fitter carrying out task Hot Work Permit (if Fire Ban) Certified persons to operate	AS-4839 (Safe use of Oxy-fuel Gas Sys) Storage/Handling of Gases SMS-06-SW-0196
		Breathing difficulties from fumes	C+	Ensure well ventilated area monitor if welding for long periods	D		PPE SMS-06-GD-0323 Hot Work SMS-06-PR-0329
		Arc Welders					
		Fumes from Chemicals during Arc Welding	C+	Ventilation Extinguishers Hot work permit if fire ban	D		AS-1674.2 , AS/NZS-3195
		UV Radiation from Electric Arc	C+	Use of PPE - Shields and signage	D		AS-1674.2 , AS/NZS-3195
10	Pipe bending on site If required.	Hand injury from sharp edges	C+	Use of PPE – Kevalar Gloves Minimum two people when operating mechanical bender	D	All Staff	PPE SMS-06-GD-0323
11	Set to Work	Personal injury from Air under pressure	C+	Check before testing that all joints are completed and connected as required. Stand clear while line pressurised	D	All Staff	Signalling Design Standards

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.