

# Cad Welds-Track Leads Bonds - Studs to Rails

Issue date: 11/04/08

Review date: 19/02/11

<b>SWMS number:</b> SMS-06-SW-1008	<b>SWMS Name:</b> Cad Welds-Track Leads - Bonds - Studs to Rails			<b>SWMS Team :</b> Signal Review Team
<b>Custodian (Position):</b> Signal Services & External Resources Manager	<b>Assumptions:</b> Site specific risks are addressed and assessed in pre- work briefing			
<b>Approving Authority (Position):</b> Safety and Quality Manager Commercial / Renewals	<b>Equipment/Plant/Tools:</b> <ul style="list-style-type: none"><li>• Vehicle Crane</li><li>• Oxygen Monitor, Electric Fans, Catalytic Converters</li><li>• Grinder,</li><li>• Hand Tools, Spanners, Tongs, Spatula</li><li>• Shovels, Bars</li><li>• Generator, RCD Unit, Fuel, LP Gas</li><li>• GRN Radios</li><li>• Fire extinguishers; water Knapsack ; Water Cart</li><li>• Hot Box or Suitable Container</li></ul>	<b>Records/Reporting:</b> <ul style="list-style-type: none"><li>• Worksite Protection Plan</li><li>• Pre-work Brief</li><li>• Electrical Test Tags</li><li>• Signalling Design/ Construction Standards</li><li>• Electrical Permit</li></ul>	<b>Permits/Licences required:</b> <ul style="list-style-type: none"><li>• Vehicle Crane certificate</li><li>• Plant/Equipment Operators Certificates</li><li>• LCR32 Observer</li><li>• Hot Works Permit (During Total Fire Ban)</li></ul>	<b>Content reviewed by Technical expert (SME) and RailCorp safety professional</b> (position including Div/Group) Signal Services & External Resources Manager & SEQ Coordinator Asset Management Group Commercial / Renewals
<b>Applicable Standards, Codes of Practice and guidance:</b> <ul style="list-style-type: none"><li>• OH&amp;S Act 2000</li><li>• OH&amp;S Regulation 2001</li><li>• Rail Safety Regulation 2003</li><li>• RailCorp Network Rules &amp; Procedures</li><li>• Signalling Maintenance Procedures</li><li>• Technical Maintenance</li><li>• Signal Engineering Standards</li><li>• RailCorp Safety Management System.</li><li>• Work Near Overhead Power Lines Code of Practice 2006</li><li>• MSDS for all chemicals and Hazardous substance used on site</li><li>• Civil Engineering Standard G 3623</li><li>• Safety Issues for Signalling Personnel TMG J042</li><li>• WorkCover NSW Plant Guide</li><li>• EC14 – Guide to Electrical Workers' Safety Equipment</li><li>• AS 4292.1 2006 “Railway safety management”</li><li>• AS 1674.1 – Safety in welding processes</li></ul>	<b>Inspection requirements:</b> Nil	<b>Service schedule:</b> Nil	<b>Training/Qualification required:</b> <ul style="list-style-type: none"><li>• Construction Industry</li><li>• Induction</li><li>• Track Safety Awareness or RISI (Rail Industry Safety Induction)</li></ul> And as specified below. <ul style="list-style-type: none"><li>• Signalling Design/ Construction Certification</li></ul>	

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<ul style="list-style-type: none"><li>• AS 4839 portable oxy-fuel gas systems</li><li>• AS/NZS 2865:2001 Safe working in a confined space</li></ul>		<b>MIMS or METRE Ref:</b> Nil		
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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	Access , Egress and Working on site	Hit by Train	B+	Pre-work Brief including Worksite Protection Plan, Site Induction and Inspection Ensure sign on to depot safety register	D	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	D	Worksite Protection Officer	Plant SMS-06-GD-0225
6	Accessing, Working and Using Plant/Machinery in Tunnels	Personnel injury from Fumes/contamination of atmosphere	C+	Continuous 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 PPE – Dust Masks	D	All Staff	City Region Hazard Summary - Part 2 City Tunnels PPE SMS-06-GD-0323

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		Electrocution from Negative Return	B+	Ensure Power out Permits are Acquired	D	All Staff	City Region Hazard Summary - Part 2 City Tunnels Electrical Equipment SMS-06-GD-0268 Electrical Permits SMS-06-EN-0577
		Lack of Communication	C-	GRN Radios to be used.	D	All Staff	City Region Hazard Summary - Part 2 City Tunnels
6	Accessing, Working and Using Plant/Machinery in Tunnels (Cont.....)	Use and Placement of equipment	B-	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 Plant SMS-06-GD-0225
		Hearing Damage	B+	Use of PPE – Hearing protection Use Hydraulic equipment. Have silencers fitted	D	All Staff	City Region Hazard Summary - Part 2 City Tunnels PPE SMS-06-GD-0323



**WARNING**

## **The Following Precautions are to be undertaken for when using Hot Works as in Activities 7, 8, & 11 during Total Fire Bans:**

- An Hot Works Permit must be Issued before Work tasks are to be Performed
- The Rail Bonder 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 Bonding 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

## General Process Hazards

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		Injury from petrol grinder	B+	Use in accordance with manufacturers instructions, Grinder checked prior to use Use of PPE – Face shield, Ear protection	D	Rail Bond Welder, Work Group Leader, All Staff	PPE SMS-06-GD-0323 Operating Manual Plant SMS-06-GD-0225
		Back injury / Manual Handling	B+	Use correct Backsafe techniques	D	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 of guide ropes if required	D	Vehicle Crane certificate Holders	Lifting Equipment Inspection SMS-16-FM-0089
		Touch potential between rails	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
		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)	D	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
8	Pre – heat rails/ Pre-heat mould	Burns from gas torch	C+	Ensure that equipment has been checked and is in good working order Use of PPE –Gloves, Welding Goggles	D	Work Group Leader Rail Bond Welder, All Staff	Erico Standards, PPE SMS-06-GD-0323
		Burns/Eye injury from Explosion / flash	B+	Ensure ventilated area. Ensure equipment is upright	D	Rail Bond Welder, All Staff	Plant SMS-06-GD-0225

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		Fire	B+	Ensure fire protection measures are in place. i.e. fire extinguishers; water cart, fire permits	D	Work Group Leader Rail Bond Welder, All Staff	Site Incident Response Procedures SMS-15-PR-0245 Hot Work SMS-06-PR-0329
9	Fit moulds	Burns from Hot moulds, Hot rail and Hot studs / bonds	B+	Use of PPE –Gloves, Welding Goggles Use extreme care	D	Rail Bond Welder, All Staff	Erico Standards, PPE SMS-06-GD-0323
10	Insert thimble /Erico Cadweld powder	Burns from Hot moulds, Hot rail and Hot studs / bonds	B+	Use of PPE –Gloves, Welding Goggles Use extreme care	D	Rail Bond Welder, All Staff	Erico Standards, PPE SMS-06-GD-0323
		Fires from Spilt powder	B-	Use of PPE –Gloves Remove /cover with dirt prior to igniting	D	All Staff	
11	Ignite Erico Cadweld powder with Flint Gun or Electronic Igniters	Burns from Hot metal	B+	Use of PPE –Gloves Face Mask use extreme care	D	Rail Bond Welder, All Staff	Erico Standards, PPE SMS-06-GD-0323
		Flash /splatter	B+	Use of PPE –Face Mask, eye protection full face shield	D	All Staff	
		Excess metal	B-	Remove with gloves, spatula or tongs. Place All Excess Hot Metals into a Hot Box or Suitable Container	D	All Staff	Electrical Design Standards
		Breathing in Fumes /Smoke	B+	Ensure workers are up wind of smoke generated Use of PPE – Dust Masks	D	All Staff	PPE SMS-06-GD-0323
		Fire	B-	Ensure fire protection measures are in place. i.e. fire extinguishers; water cart, fire permits	D	All Staff Hot work permit required during fire ban	Site Incident Response Procedures SMS-15-PR-0245 Hot Work SMS-06-PR-0329
12	Remove mould / clean mould	Hot metal	B+	Use of PPE – Mandatory, use extreme care	D	Rail Bond Welder, All Staff	Erico Standards, PPE SMS-06-GD-0323
		Eye injury from Fines (particles)	B+	Use of PPE – Welding Goggles,	D	All Staff	

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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



RailCorp Level 2 Risk Matrix - Regional & Local (Workplace)			Likelihood/Frequency							Definition for Use - Regional & Local level (Workplace)
			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	
Consequence				F1	F2	F3	F4	F5	F6	
			Incredible	Improbable	Remote	Occasional	Probable	Frequent		
>10 Fatalities	C6	Disastrous	B-	B+	A	A	A	A	A	<p>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.</p> <p>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.</p> <p>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 likelihood in the workplace. Choose the most appropriate.</p> <p>To score the risk, follow the steps:</p> <ol style="list-style-type: none"><li>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 matrices).</li><li>2. Identify the likelihood of this level of consequence occurring. (This is done after considering the effectiveness of the current controls in place)</li><li>3. Score the risk using the combination of likelihood and consequence ranking.</li></ol> <p>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.</p>
2-10 Fatalities	C5	Catastrophic	C+	B-	B+	A	A	A	A	
1 Fatality (2-10 Major Injuries)	C4	Critical	C-	C+	B-	B+	A	A	A	
1 Major Injury	C3	Major	D	C-	C+	B-	B+	A	A	
1 or more Minor Injuries	C2	Minor	D	D	C-	C+	B-	B+	B+	
First aid treatment, or illness/injury not requiring treatment	C1	Negligible	D	D	D	C-	C+	B-	B-	