

<b>SWMS number:</b> SMS-06-SW-1102	<b>SWMS Name:</b> Cadwelding	<b>SWMS Team:</b> Electrical Distribution Review Team	
<b>Custodian (Position):</b> Electrical Services Manager, Commercial Renewals	<b>Assumptions:</b> Site specific risks are addressed and assessed in pre- work briefing	<b>Content reviewed by Technical expert (SME) and RailCorp safety professional (position including Div/Group)</b> Electrical Services Manager & SEQ Coordinator Asset Management Group Commercial Renewals	
<b>Approving Authority (Position):</b> Safety and Quality Manager Commercial Renewals	<b>Equipment/Plant/Tools:</b> <ul style="list-style-type: none"> <li>• Electronic Igniter</li> <li>• Appropriate handtools, Knives, Hacksaws</li> <li>• Flint Gun</li> <li>• Cable Stripper Knife</li> <li>• Heat Gun</li> <li>• Files</li> <li>• Cadweld Moulds / Charges</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>• Fire Brigade</li> <li>• Material Safety Data Sheet</li> <li>• Cadweld Manufacturer's Instructions</li> </ul>	<b>Permits/licences required:</b> <ul style="list-style-type: none"> <li>• Hot Work Permit (During Total Fire Ban)</li> </ul>
<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>• RailCorp Safety Management System.</li> <li>• MSDS for all chemicals and hazardous Substances used on site</li> <li>• Electrical Safety Instructions</li> <li>• SAA Wiring Rules</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 Induction</li> <li>• Track Safety Awareness or RISI (Rail Industry Safety Induction)</li> </ul> <p>And as specified below.</p> <ul style="list-style-type: none"> <li>• Authorised Electrical Person</li> </ul>
		<b>MIMS or METRE Ref:</b> Nil	<p>And as specified below.</p> <ul style="list-style-type: none"> <li>• Gloves</li> <li>• During all Site Works a FIRST AIDER MUST be Present</li> </ul>

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	Obtain (MSDS) Material Safety Data Sheet	Nil				Team Leader / Work Group Leader / All Staff	MSDS
WARNING		<p><i>The Following Precautions are to be undertaken for when using Hot Works as in Activities 11, 12 &amp; 13 during Total Fire Bans:</i></p> <ul style="list-style-type: none"> <li>• An Hot Works Permit must be Issued before Work tasks are to be Performed</li> <li>• The Cadweld User or other person in control of the Worksite must take reasonable care to inspect the workplace to identify Potential Fire Hazards</li> <li>• All Fire Hazards are to be removed Prior to commencing Cadwelding Tasks</li> <li>• Fire Fighting Equipment must be on Hand at the Worksite e.g. Watercart, Knapsacks, Fire Extinguishers</li> <li>• (Hot Works in Progress) Warning Signs are to be placed at Appropriate locations</li> </ul> <p>Hot Work SMS-06-PR-0329</p>					
6	Ensure & Complete Pre Work Briefing	Staff require thorough briefing	C+	Verbal discussion on job steps. Advise all staff to stand clear of the area.	D	Team Leader / Work Group Leader	Pre work Briefing SMS-06-FM-0163
7	Prepare Cable for Cadwelding by stripping	Knife cuts and wounds. Inspect cable for moisture	C+	Proper cable stripper for the job. Expel moisture from cable using heat gun.	D	All Staff	Manual Handling SMS-06-GD-0001
8	Cadweld mould inspection	Cracked / Worn	C+	Discard and obtain a new mould	D	Competent Cadweld User	Manufacturer's Instructions, Hazardous Substances SMS-06-GD-0199
		Wet or moist mould	C+	Visual inspection and confirmation required. Pre-heat mould to expel moisture	D		

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9	Cadweld charge inspection	Moist or damp charge	C-	Discard and obtain a new dry charge	D		Plant & Equipment Safety SMS-11-GD-0243
10	Flint Gun inspection	If flint gun fails to work obtain another flint gun.	C-	If another flint gun cannot be obtained then CEASE WORK.	D		Working Outdoors SMS-06-PR-0104
11	Ignite Charge	Caution: Very hot molten metal and flame. Burns.	B-	Safety Glasses, Leather Gloves, and ignite charge from the side and at arms length ensuring fast reflex. Keep clear of opening. Light from the side	D	Competent Cadweld User	Fire Procedures SMS-06-PR-0329
				Use Electronic Ignition system			Hot Work SMS-06-PR-0329
12	Allow sufficient time for mould to cool down	Burns	B-	Wait for cooling of mould and cable.	D		Manufacturer's Instructions, Hazardous Substances SMS-06-GD-0199
13	Remove Mould	Hot mould / cable and possible sharp edges.	B-	More cooling time and debur sharp edges.	D		Plant & Equipment Safety SMS-11-GD-0243
14	Removal of excess in mould. Cleaning of mould.	Don't leave laying around Worksite	C-	Return to safe storage	D	All Staff	Working Outdoors SMS-06-PR-0104
							Fire Procedures SMS-06-PR-0329
							House Keeping SMS-16-FM-0069

## Legend

PWB – Pre Work Brief  
ESI's – Electrical Safety Instructions  
MSDS – Material Safety Data Sheet  
PPE – Personal Protective Equipment  
RDELE – Renewals Distribution Electrical  
SWMS – Safe Work Method Statement

# Cadwelding

Issue date: 08/04/08  
Review date: 21/02/11

**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**

RailCorp Level 2 Risk Matrix - Regional & Local (Workplace)		Likelihood/Frequency							<b>Definition for Use - Regional &amp; Local level (Workplace)</b>  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 likelihood 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 matrices).  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 of risk and/or where the controls may be different. It may be useful to score the risk more than once.
		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	
		2-10 Fatalities	C5 Catastrophic	C+	B-	B+	A	A	
		1 Fatality (2-10 Major Injuries)	C4 Critical	C-	C+	B-	B+	A	
		1 Major Injury	C3 Major	D	C-	C+	B-	B+	
		1 or more Minor Injuries	C2 Minor	D	D	C-	C+	B-	
		First aid treatment, or illness/injury not requiring treatment	C1 Negligible	D	D	D	C-	C+	
									