Escalator Maintenance

<table>
<tr><td>SWMS number:
SMS-06-SW-0868</td><td colspan="3">SWMS Name:
Escalator Maintenance</td><td rowspan="2">SWMS Team:
Ray Stokmanis
Vinesh Pathman</td></tr>
<tr><td>Custodian (Position):
Manager Infrastructure Facilities</td><td colspan="3">Assumptions:
• Work is carried out in an environment that is restricted to authorised persons only.
• Some work is carried out offsite</td></tr>
<tr><td>Approving Authority (Position):
General Manager Infrastructure Maintenance Division</td><td>Plant/Equipment/Tools:
• Hand tools
• Danger tags
• Portable ladders
• Welder
• Power Tools
• Machine tools (Offsite)</td><td>Records/Reporting:
Ellipse</td><td>Permits/licences required:</td><td rowspan="2">Content reviewed by Technical expert (SME) and RailCorp safety professional (position including Div/Group)
Manager Lifts and Escalators
Safety and Systems Manager
Asset Management Division Buildings and Sidings</td></tr>
<tr><td rowspan="2">Applicable Standards, Codes of Practice and guidance:
• OH&S act 2000
• OH&S regulations 2001
• Workcover NSW CoP for the control of workplace Hazardous Substances
• Workcover publication 4503 portable ladders
• Lift code AS 1735
• AS4024 Safety of machine guarding
• SMS plant and equipment lock out tag out procedure</td><td>Inspection requirements
• Pre start Inspection
• Testing and tagging</td><td>Service schedule:
Ellipse inspection schedule</td><td>Training/Qualifications required:
• RISI (Rail Industry Safety Induction)
• Construction Industry OH&S General Induction (WorkCover blue card)
• Relevant trade qualification
• Site Safety Induction</td><td>PPE required:
• Safety Boots
• Safety Eyewear
• Hard Hat / Bump Hat as required
• Protective Clothing
• Safety Vest</td></tr>
</table>

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	Staff undertake site pre-work briefing and local induction.	Staff not aware of safety requirements and emergency procedures	B-	At each visit pre work, staff must sign in with the Station Manager and carry out a pre work briefing	C-	Supervisor workteam	SMS-06-FM-0163 Pre work briefing
2	Verify competence of personnel doing the task and currency of qualifications.	Accident or injury through use of personnel who are not competent in carrying out the work	C+	Check and verify competency cards	C-	Supervisor Workteam	
3	Review work arrangements 1). scope of work 2). safeworking requirements	Incorrect swms/ swi for work No worksite protection	B+	Review SWMS and confirm it is current. Conduct and record worksite protection assessment	C-	Workteam	
4	Escalator , servicing, maintenance and general work	Plant equipment oil spills	C+	Emergency oil spill kit available	D	Workgroup	
		Lifting equipment failure	B-	Check that plant and equipment for the task is fit-for-purpose prior to using.	C-	Workteam	
		Cuts and abraisions Needle stick	B-	PPE gloves PPE Gloves; sharps kit. Sharps to be disposed off in approved manner	C-	Workteam	SMS-06-sw-0405 Handling sharps
		Back injury Muscular strain	B-	Keep back straight. Backsafe training Team lift for heavy or awkward items. Use lifting aids i.e trolleys, chain block etc.	C-	Workteam	
		Slips trips and falls	B-	Maintain work area in clean dry and tidy Openings and floor penetrations covered / guarded Hazards identified in pre work briefing	C-	Workteam	
		Electrocution	B-	Work around exposed equipment to be by qualified electricians. CB to be isolated, locked & tagged when working on electrical equipment. Follow complex isolation procedure	D	Workteam	SMS-06-SW-0267 Electric shock protocol SW-06-SW-0271 Complex Isolation procedure

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		Contact with moving machinery Crushing Nip point	B-	Brief staff on hazards Safety guards to be in place & correctly maintained. Exercise caution & keep clear of nip & shear points on shafts, sheaves & chains. Stop machinery where hazards exists. Ensure machinery is stationary before commencing any work. Open safety circuit where inadvertent start up could be undesirable. Isolate, lock & tag CB where inadvertent start up could be hazardous. Confirm all persons clear & accounted for prior to restartinq after isolation.	D	Workteam	Complex Isolation Procedure (attached to this SWMS)
		Barrier falling	B-	Ensure barriers, hoarding are securely fastened	C-	Workteam	
		Hazards in worksite	B	Pre Work Briefing Ensure hatches, covers and materials are stowed clear of unit, passage ways and work area	C+	Workteam	
		Outward opening doors	B	Open doors with care so as not to strike persons on the other side	C+	Workteam	
		Unauthorised persons in worksite	C+	Install barriers , hoarding to restrict unauthorised access into worksite.	D	Workteam	
		Public intrusion /abuse	C+	Ensure safety of self and staff. Refer to station security	D	Workteam	

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5		Step removal (fall into opening)	A	Remove minimum number of steps necessary. Do not remove multiple groups of steps. Replace steps at earliest opportunity. Park gap on underside at every opportunity. Post lookout at landings when operating escalator with steps removed. Gaps parked on top side must be attended by lookout, or protected by large hoardings. Isolate, lock & tag CB unless escalator is in operation. Instruct all persons on site that steps are removed & to be aware of gap. Do not operate escalator from controller. Operate escalator from key station or remote control unit whilst having full view of top side Follow complex isolation procedure	C+	Workteam	Complex isolation procedure
		Entering escalator truss	A	Isolate lock and tag CB Use ladders where necessary to climb in and out of truss. Ensure adequate footing by working off platforms where necessary. Follow complex isolation procedure	C+	Workteam	Complex isolation procedure
		Inadequate communication in remote location	B-	Determine method of relaying instruction to person operating equipment from a remote location based on site risks	C-	Workteam	
		Fire	C-	Conduct an assessment of the job and determine the need to obtain Hot work permit and fire protection measures. Be familiar with evacuation procedures	D	Workteam	
		Hazardous substances	B+	Refer to risk assessment for the hazardous substance for control measures.	C-	Workteam	SMS-06-GD-0228 Hazardous materials guide

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6		Working at heights	B+	Fall protection based on risk assessment and site hazards Exercise caution to maintain balance Do not overreach	C+	Workteam	SMS-06-GD-0240 Fall arrest systems
		Using portable ladders	B-	Use non metallic ladders in accordance with the SWI for portable ladders.	D	Workteam	SMS-06-SW-0263 Portable ladders, step ladders.
		Isolated work	B-	Persons working alone must make their proposed movements and schedule known to their supervisor to facilitate response should their return be delayed Ensure sign in with station manager. If station is not manned inform Elec trouble	C+	Workteam	
		Use of hand tools and minor plant	B-	Elect equipment tested and current tag. Tools and equipment fit for purpose and inspected prior to use. Only competent persons to use tools and equipment.	D	Workteam	
7	Using Welder	Welding flash Burns Electrocution	C+	PPE – welding helmet or goggles PPE – gloves Competent operator Do not use in wet conditions	D	Workteam	

COMPLEX ISOLATION PROCEDURE FOR ESCALATORS

TRUSS ENTRY

Procedure	Risk	Control Measure
Switching escalator C/B on after completion of work inside truss (this procedure also applies equally to any other situation or type of work where persons may be exposed to injury should the C/B be energised or the escalator started without their knowledge	Unauthorised person may enter the truss	All persons must be briefed that entry is only permitted after being issued with a token and the token must be returned on exiting the truss
	Person may be overlooked and remain in the truss when the C/B is switched back on	All tokens must be returned prior to switching the C/B on
	Persons may enter and exit the truss many times during the work	All persons must be briefed that entry is only permitted after being issued with a token
	Inadvertent start up after C/B is switched on	Lookout person must be posted at a key station
A token receptacle shall be attached to the key for the C/B and the procedure for managing tokens shall be as shown on the right.		A designated person shall be responsible for the entry, briefing, issue of tokens, collection of tokens and the switching of the C/B
		The designated person shall lock and tag the C/B and then issue a token to each person requiring access into the truss
		Persons must keep their token on their person till their entry is no longer required (or when recalled by the designated person)
		Prior to switching the C/B on, the designated person must recall all tokens and instruct the persons not to re-enter the truss.
		The designated person must place all tokens in the receptacle attached to the key for the C/B so as to ensure all tokens are accounted for
		The designated person must post a lookout person at a key station to detect any inadvertent start up and make a final check to satisfy himself that no persons are within the truss prior to switching the C/B on

COMPLEX ISOLATION PROCEDURE FOR ESCALATORS

OUT OF SIGHT SWITCHING

Procedure	Risk	Control Measure
Switching escalator C/B on during course of work	Inadvertent energising of electrical circuits or start up of escalator after C/B is switched on	All persons must be instructed that the C/B is to be switched on
		Lookout person must be posted at a key station
		Truss entry procedure if applicable

SEPARATING DRIVE FROM ESCALATOR

Procedure	Risk	Control Measure
Dismantling machine brake or removing main drive chain	Out of balance load may cause steps to run away	Switch off C/B and engage emergency brake before starting work

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.