

Perform Survey Work

Issue date: 27/02/08

Review date: 21/02/11

SWMS number: SMS-06-SW-1110	SWMS Name: Perform Survey Work			SWMS Team: Graeme Gaggin Mick Athorn Richard Plokstys Alex Martinov Terry Wood Robert Thyer David Lang Fab De-Luca Andrew Gell Ray Brookes Michael Aldama Steve Sciglitano
Custodian (Position): Senior Surveyor	Assumptions: 1. This SWMS examines the hazards and controls likely to be encountered when performing survey work at any location within the rail corridor. If the work location is in a tunnel; on an underbridge or overbridge; within a construction site; or outside the rail corridor, this statement MUST be supplemented by the statement relevant to that location. Refer to SWMS SMS-06-SW-1111, SMS-06-SW-1112, SMS-06-SW-1113, SMS-06-SW-1114 2. Depending on the type of survey being performed, the sequence of Job Steps 5 & 6 is interchangeable			
Approving Authority (Position): Principal Surveyor	Plant/Equipment/Tools: <ul style="list-style-type: none"> Survey equipment, tools materials, Horn, Detonators, flags, lamps Witches' hats (cones) Barrier tape Hand drill Warning time calculator Signal box contact list 	Records/Reporting: SMS-06-TP-0312 Site-Specific Safety management SMS-06-FM-0163 Pre-work briefing SMS-06-FM-0774 Worksite Protection Plan	Permits/licences required: NA	Content reviewed by Technical expert (SME) and RailCorp safety professional (position including Div/Group) Graeme Gaggin, Principal Surveyor
Applicable Standards, Codes of Practice and guidance: <ul style="list-style-type: none"> SPC 211 Survey Specification TMC212 Survey Manual Surveying Act 2002 Surveying (Practice) Amendment Regulation 2006 OHS Regulation 2001 (particularly Clause 47) 				
MIMS or METRE Ref: NA				

SWMS Custodian: Senior Surveyor
 SWMS Approver: Principal Surveyor
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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	Organise resources, collect data from Hazardous locations Register, load vehicle and travel to worksite	Muscular stress or strain	C+	<ul style="list-style-type: none"> ensure all personnel are trained in manual handling techniques and use of survey tools deploy job rotation to avoid constant exposure use other personnel to "share the load" use the correct tools where appropriate 	D	Survey Infrastructure Worker	SMS-06-FM-0635 Manual Handling ID Risk Assessment Checklist SMS-06-GD-0001 Guide to Manual Handling
		Hazards identified in Regional Hazardous Locations Register	various	<ul style="list-style-type: none"> As per Hazardous Locations Register 	various		SMS-06-PR-0223 Hazardous Rail Corridor Locations
2	Establish method of worksite protection and notify signaller or PPO	Strike by train	B+	<ul style="list-style-type: none"> Worksite Protection Plan Protection vide relevant Network Rules / Procedure Interface with other workgroups 	C+	Protection Officer Level 1	Network Rules inc NWT300 to 310 Network Procedures inc NPR700-703
3	Perform pre-work briefing to assess site specific hazards and establish controls	Not focusing on or not understanding pre-work briefing information	C+	<ul style="list-style-type: none"> Involve the whole team and ask team members direct questions regarding their understanding 	D	Team leader in conjunction with team	SMS-10-FM-0205 Safety Briefing Attendance Record SMS-06-FM-0163 Pre-work Briefing Pre Work Briefing Checklist
4	Unload equipment and transfer to worksite	Muscular stress or strain	C+	<ul style="list-style-type: none"> As per Job Step 1 above 	D	Work team	

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4 ctd	Unload equipment and transfer to worksite	Trips and falls on the same level	C+	<ul style="list-style-type: none"> Wear appropriate footwear – safety boots, safety gum boots Ensure the worksite is clear of debris Position tools, equipment and materials in a safe place clear of walkways, refuges and vehicular access routes Identify slippery surfaces, wet locations, grease pots etc within the worksite Be aware of the position of the rails and track side equipment Ensure lighting is adequate – use torches in tunnels, at night and in other dark locations Avoid carrying loads on steep embankments Avoid steep ballast shoulders Do not jump off batters or across drainage controls or from platforms Share or minimise loads Walk slowly and purposefully through areas of high risk 	C-	Work team	SMS-06-GD-0323 Personal Protective Equipment

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5	Marking up for survey	Exposure to noise or vibration: 1) On-site eg plant & machinery; trains 2) Off-site eg traffic; other sources such as adjacent factories or construction sites	C+	<ul style="list-style-type: none"> use ear plugs or ear muffs where noise is loud enough to interrupt normal speech for continuous periods (eg > 5 minutes) or when you need to shout to be heard regulate exposure to noise where possible eg liaise with other worksites to determine if noisy work can be suspended while surveying OR stage or plan work away from noise source ensure the position of lookouts are not compromised – move lookout closer, use horn or whistle 	D	Team leader	SPC 211 Survey Specification TMC212 Survey Manual
5 ctd		Trips and falls on the same level	C+	<ul style="list-style-type: none"> As per Job Step 4 above 	C-	Team Leader	
		Muscular stress or strain	C+	<ul style="list-style-type: none"> As per Job Step 1 above Engage Regional staff and obtain mechanical aids where possible 	D		

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5		Heat stress (on hot days)	C+	<ul style="list-style-type: none"> Ensure personnel are trained in the signs and symptoms of heat stress such as dark yellow urine, fatigue, dehydration, cramps, nausea, rapid breathing Drink water at regular intervals Schedule heavy work outside the hottest part of the day Utilise shade where possible Take regular breaks Pace yourself through work activities Monitor physical response to conditions 	C-		SMS-06-PR-0039 First Aid
5		Exposure to UV radiation	C+	<ul style="list-style-type: none"> Use sunscreen and replace regularly Stage or plan work to take advantage of shade where possible Tinted Safety glasses to be worn when looking upwards (such as for OHW surveys) 	D		
5		Snake bite, insect bites and stings	C+	<ul style="list-style-type: none"> Identify locations of high risk - long grass; near culverts and dams; under rocks, sleepers, rail logs and burrows Wear gloves where appropriate Walk "heavily" Don't enter areas you cannot see properly 	C-		

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		Distraction of team member by mobile phone, leading to an unsafe situation	C+	<ul style="list-style-type: none"> Use of mobile phones must be specifically discussed in the pre-work briefing. Depending on the site and varying roles of personnel, phones other than that of the protection officer may need to be turned off when working. If taking a call work must cease. Use phone only when in a safe place 	D	Team Leader	
5		Contact with hazardous substances used as part of the job: <ul style="list-style-type: none"> Spray paint araldite 	C-	<ul style="list-style-type: none"> Refer to MSDS Ensure all staff are trained in the use of MSDS Wear gloves when handling araldite Point spray paint away from body and down wind when using Restore lids and securely store in vehicle or cupboard after use 	D		SMS-06-GD-0199 Dangerous Goods and Hazardous Substances
5		Contact with hazardous substances used as part of the job: <ul style="list-style-type: none"> Spray paint araldite 	C-	<ul style="list-style-type: none"> Refer to MSDS Ensure all staff are trained in the use of MSDS Wear gloves when handling araldite Point spray paint away from body and down wind when using Restore lids and securely store in vehicle or cupboard after use 	D		SMS-06-GD-0199 Dangerous Goods and Hazardous Substances

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5		Contact with asbestos encountered on site	C-	<ul style="list-style-type: none"> Consult the Regional Hazardous Locations Register Do not disturb asbestos materials encountered on site Report the location of asbestos found to the local Region 	D		
5		Contact with overhead wiring when obtaining wire heights	B+	<ul style="list-style-type: none"> Use only fibreglass staves Check before use that the staff has been tested and tagged for non-conductivity Electrical awareness training Annual conductivity tests for survey staves Do not use staves when wet or in rain 	D		SMS-06-SW-0275
5		Needle sticks	C-	<ul style="list-style-type: none"> Check worksite before commencing work Do not place hands where they cannot be clearly seen eg cable troughing, under rails Do not remove ballast by hand Never touch or pick up needles If needles prevent safe work, arrange for trained operators to remove them 	D	Team Leader	

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5		Pedestrian traffic around platforms (pedestrians can be a hazard and YOU can be a hazard to pedestrians)	C+	<ul style="list-style-type: none"> Where practical, control pedestrian access by using witches hats, barriers or barrier tape Utilise lookouts Position tools equipment and materials clear of pedestrian walkways Where it is not practical to control pedestrian traffic due to large numbers or busy platforms, plan work for less busy periods eg night work or possessions 	D		
5		Incorrect use of hand drill	C+-	<ul style="list-style-type: none"> Use only battery powered hand drill Use hand drill according to manufacturers instruction Ensure chuck is firmly secured Hold drill firmly when drilling Wear safety glasses 	D		
5		Strike from swinging hammer or brush hook	B-	<ul style="list-style-type: none"> Wear PPE Team members to remain clear of hammer or brush hook user 	C-		
5		Strike from swinging hammer or brush hook	B-	<ul style="list-style-type: none"> Wear PPE Team members to remain clear of hammer or brush hook user 	C-		
6	Collect survey data	As per Job Step 5 above		<ul style="list-style-type: none"> As per Job Step 5 above 		Team leader	As per Step 5
7	Transfer equipment to vehicle	Muscular stress or strain	C+	<ul style="list-style-type: none"> As per Job Step 1 above 	D	Work team	

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8	Remove worksite protection and notify signaller of completion	Strike by train	B+	<ul style="list-style-type: none"> • Worksite Protection Plan • Protection vide relevant Network Rule and/or Procedure 	C+	Protection Officer Level 1	Network Rule NGE200 – “Walking in the danger zone”

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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						
			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-	

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 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 or risks and/or where the controls may be different. It may be useful to score the risk more than once.