

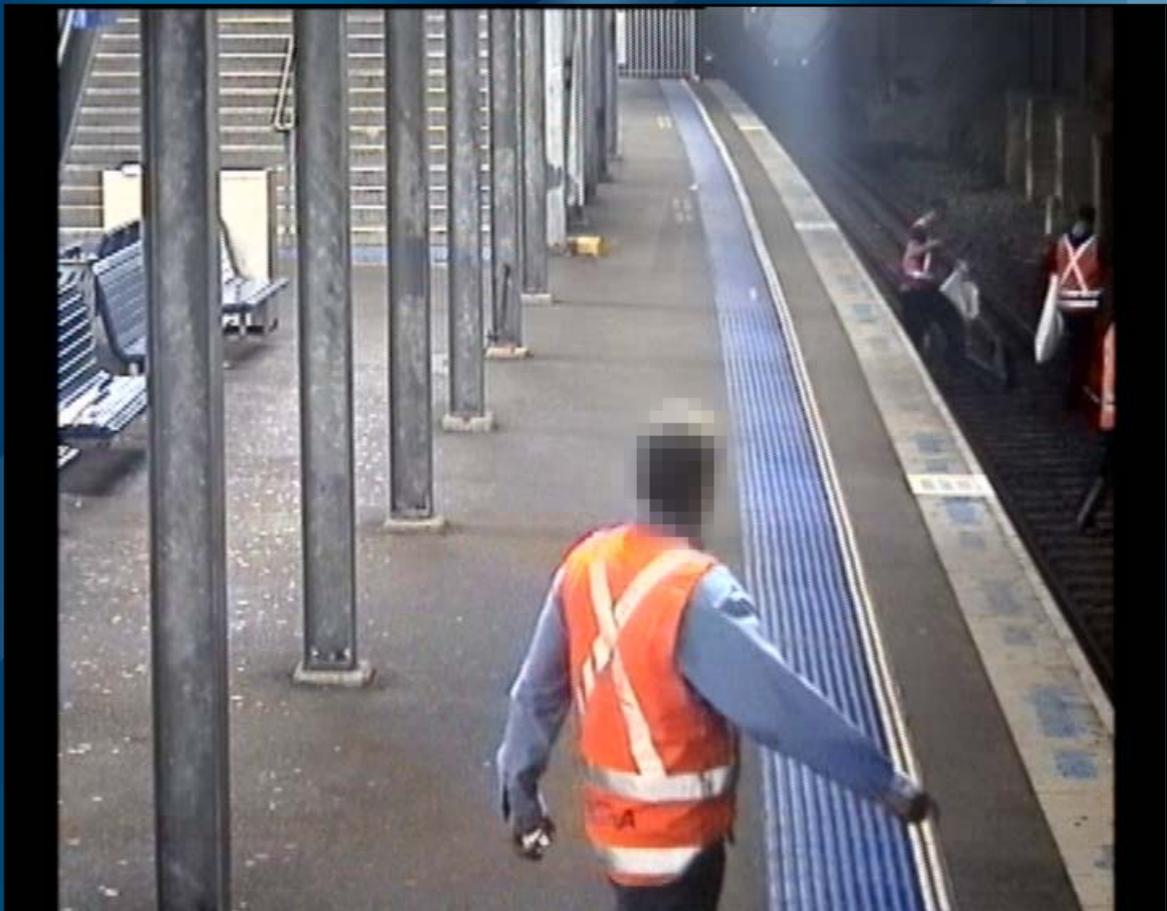


Office of Transport Safety Investigations

RAIL SAFETY INVESTIGATION REPORT

NEAR MISS WITH TRACK CLEANING CONTRACTORS BANKSTOWN

29 OCTOBER 2010



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Released under the provisions of
Section 45C (2) of the *Transport Administration Act 1988* and
Section 67 (2) of the *Rail Safety Act 2008*

Investigation Reference 04498

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ACRONYMS AND ABBREVIATIONS

ARTC	Australian Rail Track Corporation
CoC	Certificate of Competency
CSB	Controlled Signal Blocking
DIP	Directly Involved Party
ESML	Emergency Switch Machine Lock
FAID	Fatigue Audit InterDyne
ITSR	Independent Transport Safety Regulator
LPA	Local Possession Authority
NAR	No Authority Required
OTSI	Office of Transport Safety Investigations
PO	Protection Officer
RISI	Rail Industry Safety Induction Certificate
TOA	Track Occupancy Authority
TWA	Track Work Authority
WPP	Worksite Protection Plan

GLOSSARY OF TERMS

Area Controller	Within RailCorp, an Area Controller is a higher graded Signaller who remotely monitors and controls train movements in the RailCorp Network from a large signal box or control centre.
Blocking Facility	A facility or device used by a Qualified Worker to prevent either the unintended issue of a Proceed Authority, or the operation of points or signalling equipment.
Controlled Signal	A signal that is, or may be, controlled or operated by a Signaller or a Qualified Worker.
Danger Zone	Everywhere within 3m horizontally from the nearest rail and any distance above or below this 3m, unless a safe place exists or has been created.
Down	Describes the direction of travel away from Sydney.
ESML Handle	The handle used to operate an Emergency Switch Machine Lock. Removal of the handle secures the signal at Stop, and disables all other means of control.
FAID (Fatigue Audit InterDyne)	A computerised model that calculates a fatigue score which is compared with the fatigue expected to be induced by working a particular pattern of work. The principal use of FAID is to better manage shiftwork, scheduling and fatigue risk.
Kilometrage	The distance by rail as measured from Central Station in Sydney.
Light Non-Powered Hand Tool	A tool that can be easily carried by one person and is not powered by compressed air, gas, electricity, hydraulics, explosive charges or an internal combustion engine.
Light Powered Hand Tool	An internally powered tool that can be carried easily by one person, without mechanical assistance.
Lookout	A Qualified Worker responsible for keeping watch for approaching rail traffic, and for warning other workers to stand clear of the line before the arrival of rail traffic.
Network Control Officer	A Train Controller for an unattended location, a Signaller for an attended location, or a delegate carrying out some functions of a Train Controller or Signaller.
Protection Officer	The Qualified Worker responsible for the protection of a worksite.
Rail Corridor	From fence-line to fence-line, or if there are no fences, everywhere within 15m of the outermost rails.
Safe Place	A place where employees and equipment cannot be struck by rail traffic.
Signaller	A Qualified Worker who issues Proceed Authorities, and works points, signals and other signalling equipment to manage routes for safe and efficient transit of rail traffic in the RailCorp Network.
Train Controller	A Qualified Worker who authorises, and may issue, occupancies and Proceed Authorities, and who manages train paths to ensure safe and efficient transit of rail traffic in the RailCorp Network.
Up	Describes the direction of travel towards Sydney.

EXECUTIVE SUMMARY

At 12:55am¹ on 29 of October 2010, the driver of an empty CityRail train travelling through Bankstown towards Sydenham reported having sounded the train's whistle and applied emergency braking due to the presence of rail workers on the track ahead. The train stopped approximately 60 metres away from the workers, who by then had moved to a safe place beside the track.

The four workers, under the supervision of a Protection Officer, were removing litter from the rail corridor as part of a contract between their employer, Swetha International Pty Ltd, and RailCorp. Prior to the workers going onto the track, the Protection Officer had prepared Worksite Protection Plans for the night's work, and had conducted a Pre-work Briefing. Controlled Signal Blocking had been determined as the appropriate method of worksite protection to be employed at Bankstown.

After finishing work on the Down track beside Platform 2, the workers crossed to a safe place at the end of the platform and adjacent to the Up track where a train was standing at Platform 1. While they waited for this train to depart, the Protection Officer, who had been delayed by the need to photograph the condition of the Down track after cleaning, caught up with his team. When the train departed, the four workers moved onto the track and commenced litter removal, in the belief that their Protection Officer had arranged the planned worksite protection.

Meanwhile, the Protection Officer, walking along the platform near his team of workers, was having difficulty contacting the Area Controller at Sydenham by mobile phone to arrange for the protection on the Down track to be lifted and for protection to be provided on the Up track. At the same time he was engaged in photographing the track prior to cleaning as required under the station corridor cleaning contract. After stopping to take a photograph he walked ahead of his team in an attempt to find a location with mobile phone coverage. It is concluded that these other tasks caused him to lose his focus on his primary responsibility as Protection Officer, namely the safety of the workers he was supervising.

¹ Times given in this report are Eastern Daylight Saving Time, 11 hours ahead of Coordinated Universal Time.

While the workers were on the track and the Protection Officer was seeking mobile phone connection, the CityRail train approached the Station in the Up direction. On seeing the workers on the track in front of him, the driver sounded the train's whistle and immediately applied emergency braking, stopping short of the workers' location. On hearing the whistle the workers moved quickly to the nominated Safe Place, while simultaneously the Protection Officer turned to warn the workers.

The near miss occurred because when the track workers commenced work on a live section of track without any form of worksite protection, their Protection Officer did not ensure their immediate movement to a Safe Place. The investigation drew attention to a number of matters of concern relating to the quality of safety-critical communication between workers and a lack of consistency in procedures relating to worksite protection in the rail corridor. Recommendations are directed to Swetha, RailCorp and the Independent Transport Safety Regulator in regard to these matters.

PART 1 THE INCIDENT

Summary of the incident

- 1.1 At 12:45am on 29 October 2010, a Protection Officer employed by Swetha International Pty Ltd (Swetha) requested and obtained protection under Network Rule NWT 308 *Controlled Signal Blocking* (CSB) for the Down line at Bankstown. The Protection Officer was supervising four Swetha track workers removing litter from the rail corridor under a contract between Swetha and RailCorp. The workers commenced by removing litter along the Down line adjacent to Platform 2, working from the east (city) end to the west (country) end of the platform.
- 1.2 While the Protection Officer remained behind to photograph the track condition after litter removal, the track workers moved to the country end of Platform 1 and waited for a train standing at Platform 1 to move away from the platform. As soon as the train was clear of the platform, the four workers walked onto the Up line and commenced litter removal, in the mistaken belief that they had protection under CSB. The Protection Officer, who had not yet made arrangements for protection of his team on the Up line, followed the track workers across from the Down line and walked along the edge of Platform 1 behind where they were working. As the Protection Officer walked along the platform he was distracted by a requirement to photograph the condition of the rail corridor prior to cleaning and by difficulties in contacting the Area Controller to report the completion of work on the Down side of the station. This took his attention away from what his team was doing.
- 1.3 At 12:53am an empty CityRail train travelling from Sefton Park to Sydenham approached at 55km/h on the track on which the team was working. Seeing the workers ahead on the track, the driver sounded the train whistle and engaged emergency braking, bringing the train to a stop some 60 metres from the workers. On hearing the sound of the train whistle, the workers moved quickly to a Safe Place beside the track.
- 1.4 At the time, the Protection Officer was on the platform walking ahead of his team and looking away from them as he tried to find a location with phone

coverage. When he heard the sound of the train whistle, he turned to warn the workers at the same time as they moved to the safe location.

Location and track information

- 1.5 The incident occurred at Bankstown Railway Station, between Punchbowl and Yagoona on a unidirectional double track known as the Bankstown line.
- 1.6 Bankstown is a suburb 19 kilometres by rail from the Central Business District of Sydney, as shown in *Figure 1*.

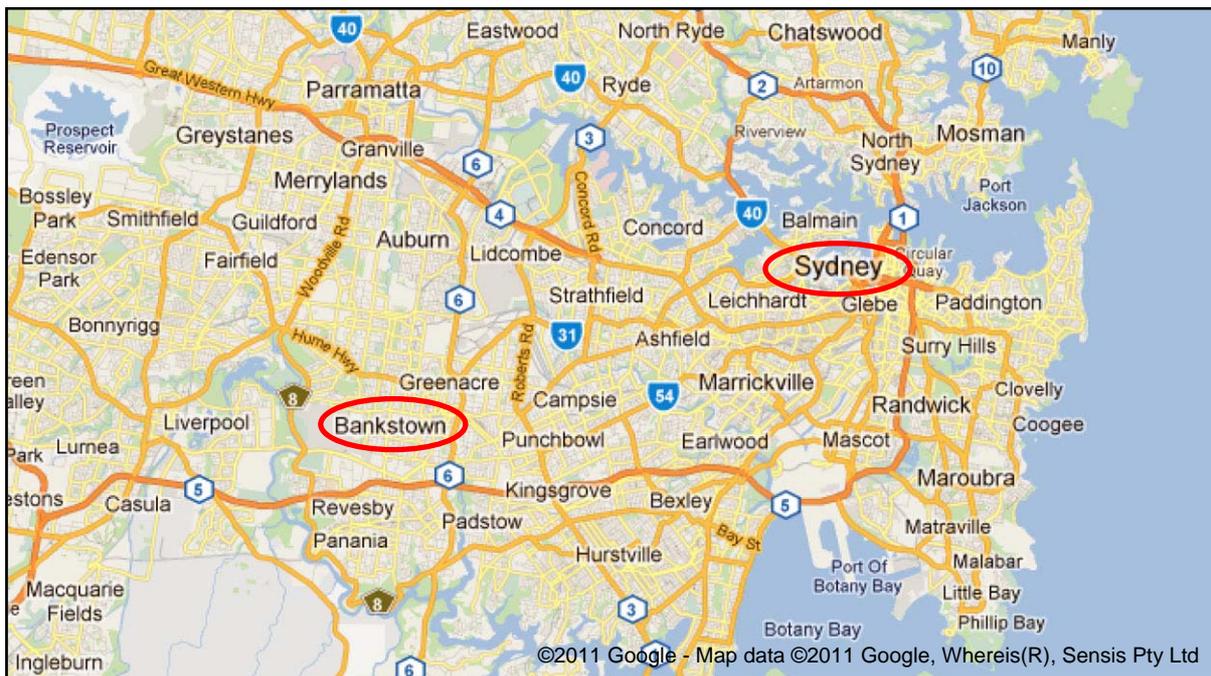
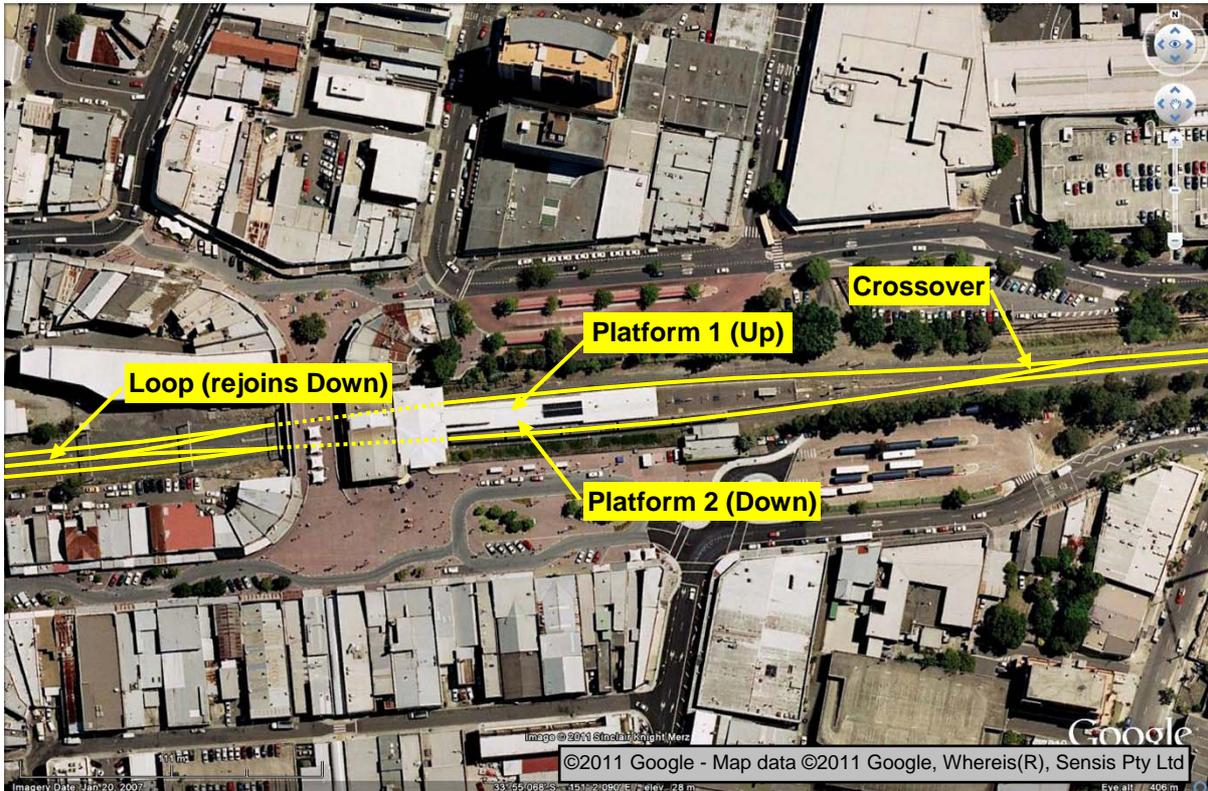


Figure 1: Location of Bankstown

- 1.7 Bankstown Station has an island platform serving both lines. The lines are joined at the city end of the station by a crossover, and at the country end through a loop. The station layout is shown in *Photograph 1*.
- 1.8 The Up line is in a wide corridor in the area adjacent to Platform 1, providing an easily accessible Safe Place for workers on the track.
- 1.9 RailCorp is responsible for track maintenance, signalling and train control functions in this corridor. Train movements in the region either side of Bankstown are controlled under Network Rule NSY 500 *Rail Vehicle Detection System* with signalling and points remotely operated from Sydenham. The control of signal and points operation is divided into panels, each operated by

an area controller (signaller). The Campsie to Bankstown panel covers the area in which the incident occurred.



Photograph 1: Bankstown Railway Station

1.10 The track speed for passenger trains on the Bankstown line between Sydenham and Regents Park is 80km/h, but in the Up direction it is reduced to 60km/h approximately 1.2km prior to Bankstown Station, before returning to 80km/h after the station.

Organisations involved

1.11 Swetha International Pty Ltd is a recruitment agency established in 1988, providing services that include the provision of contract workers for construction and maintenance activities on the rail network in NSW.

1.12 RailCorp is responsible for providing passenger rail services in NSW. As owner of the metropolitan rail network, RailCorp is responsible for the safe operation, crewing and maintenance of passenger trains and stations, and for maintenance of the track and associated infrastructure.

The station corridor cleaning contract

- 1.13 Swetha International Pty Ltd successfully tendered in 2009 for a contract with RailCorp to undertake station corridor cleaning. The contract commenced on 6 April 2010 and covered 265 stations, divided into four districts; West, Illawarra, North and South.
- 1.14 The general scope of the contract was to collect, remove and dispose of litter and rubbish at track level adjacent to station platforms at specified frequencies. The cleanup frequency at Bankstown Station was to be twice weekly.
- 1.15 The Scope of Works² noted that the primary objective was to “*contribute to the visual presentation of the network by reducing rubbish accumulation on the tracks and infrastructure with minimum disturbance to train operations*”.
- 1.16 The contractor was also required to provide “*An appropriate level of work site protection and required protection officers and lookouts where applicable to complete the works*”. Further, the contractor was responsible for organising the necessary access to the rail corridor and railway stations.
- 1.17 One of the reporting requirements of the contract was for the contractor to provide photographs taken immediately before and after corridor cleaning at each location.

The workers

- 1.18 The Supervisor of the Swetha workers comprising the team at the time of the incident was designated as Protection Officer (PO) and held a certificate of competency (CoC) at PO Level 4, well in excess of the contract requirement of a PO Level 2. As a PO Level 4, his qualifications included authority to establish worksites and implement worksite protection arrangements. He was therefore able to institute Controlled Signal Blocking under RailCorp Network Rule NWT 308 or a Track Occupancy Authority under NWT 304 or, if deemed appropriate, to arrange for work to be performed under Network Rule NWT 310 *No Authority Required* (NAR). Whilst the four other workers were involved in labouring (manual collection of rubbish), the PO was not involved

² Contract document RFT No. WS8875, *Station Corridor Cleaning, Part D Scope of Works*.

with the physical collection of rubbish but was solely responsible for arranging worksite protection and ensuring that contract obligations were met.

1.19 The four workers had undergone the required Rail Industry Safety Inductions (RISI). Two of them were also qualified to act as lookouts. Although one of them had been designated to act as lookout if one was to be required, he had not been required to do so at the time of the incident.

1.20 All five of the workers were classed as medically fit for duty.

The train

1.21 The train involved in the incident was an empty eight car T set designated as 31-Y, and had been used earlier in the evening for points cleaning. At the time of the incident it had completed this work and had left Regents Park to pass through Bankstown without stopping, en route to Sydenham, as illustrated in *Figure 2*.

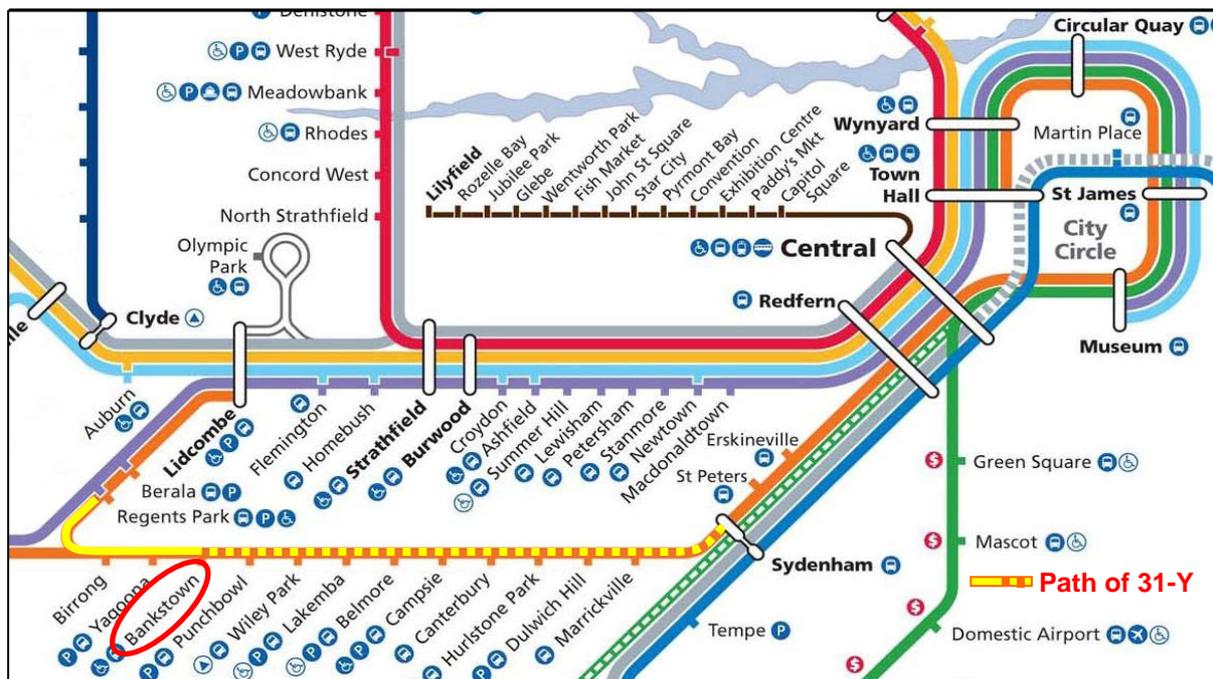


Figure 2: Path of CityRail 31-Y

1.22 The train had been scheduled to pass through Bankstown at 11:03pm, but had been delayed.

Environmental conditions

- 1.23 The weather at Bankstown at the time of the incident was cool and humid, with the Bureau of Meteorology recording a minimum overnight temperature of 11.7°C. The moon was entering its last quarter, and ambient light beyond the area lit by station lighting was limited.

Sequence of events

- 1.24 Prior to the incident at Bankstown the team had completed corridor cleaning at Lakemba, where they had been utilising CSB for protection. At Lakemba, protection had been provided on both the Up and Down lines by means of controlled signals on each track set at STOP with blocking facilities applied and points locked to prevent access as set out in RailCorp Network Rule NWT 308 *Controlled signal blocking*.
- 1.25 Before commencing at Lakemba a pre-work briefing was conducted by the Protection Officer and signed off by the team members. Among the hazards identified was “*Struck by train*”, with the control to be applied being the use of CSB. This briefing was to apply to work locations at Lakemba, Bankstown, Lidcombe, Flemington and Strathfield. The Protection Officer’s diary indicates that the team signed this brief at 11:30pm.

The Protection Officer then contacted the Area Controller at Sydenham Signalling Complex to arrange protection for station corridor cleaning at Lakemba. The Area Controller in turn contacted Train Control at RailCorp’s Rail Management Centre, as required under Network Rule NWT 308. A transcript of their conversation follows:

<p>Area Controller: Meeks³</p> <p>Protection Officer: Yeah gooday mate, how’re you doin’?</p> <p>Area Controller: Good thanks, [REDACTED], how’re you going?</p> <p>Protection Officer: Good, mate, good, we’re just at Lakemba again doin’ a splash and clean.</p> <p>Area Controller: Need anything?</p>
--

³ “Meeks” is a common use abbreviation of “Meeks Road”, and designates one of the panels in the Sydenham Signal Box.

Protection Officer: Yeah, we're just doin' Lakemba and Bankstown tonight so we'll be doin' CSB's

Area Controller: Lakemba and Bankstown?

Protection Officer: Yep.

Area Controller: Ready to go at Lakemba?

Protection Officer: Yes, mate, yes, we'd like 217, 219 on the Down?

Area Controller: Let's have a look..... On the Down..... (long pause).....

Protection Officer: You there?

Area Controller: Yeah, bear with me.

Protection Officer: Oh sorry, mate, I just thought....

Area Controller: No, you're right. I was about to say something 'cause it was an abnormally long pause (laughs). Ahh right I've locked 264 in normal with a block on 'em, I'll throw a block on 219. Don't get on yet I've got to call Ops and let 'em know.

Protection Officer: Ah could could we do the um Up at the same time?

Area Controller: I've got a big margin on the Up.

Protection Officer: Uh give us 336 and 338 as well if you could.

Area Controller: I'm actually using... (noises) ..I'll lock 360 in normal, put a block on 'm.... ermI could put a block on 338...

Protection Officer: Yep, beautiful.

Area Controller: ...I've got a block on the Up here at Lakemba, I've got a block on the Down on 219, alright I'll give you a call back in a couple of minutes, or just stand by actually.....Pretend you're not there. (Ringing)

Train Control: Campsie

Area Controller: [REDACTED] cleanup Lakemba, Up and Down Bankers, I've got nothing for a while, he wants 10 or 15 minutes. I've got blocks on 219 at Campsie with the points locked and blocked normal 264, and likewise at Bankstown 338 got a block on it with 360 locked normal with a block applied.

Train Control: Lakemba CSB on the Up and Down Bankstown line is there two signal stops and blocks applied?

Area Controller: Yep

Train Control: What time do you want to show it from?

Area Controller: Show it from now, oh nine, double oh, oh nine.

Train Control: Triple oh nine.

Area Controller: No trains in the section, for the record.

Train Control: Thanks very much.

Area Controller: No worries.

Train Control: Thank you, mate.

Area Controller: See ya.

Area Controller: You get that, [REDACTED]. You're right to go on. Lakemba Up and Down Bankers blocked (indecipherable) applied.

Protection Officer: Good man, thank you very much.

Area Controller: OK mate.

Protection Officer: See you, mate.

Area Controller: Yep

- 1.26 After the corridor cleaning work at Lakemba Station was finished and the protection arrangements fulfilled at 12:23am, the work team travelled to Bankstown Station by road to continue corridor cleaning there.
- 1.27 On arrival at Bankstown the Protection Officer used his mobile phone to contact the Area Controller to arrange protection. A transcription of their conversation follows:

Area Controller: [REDACTED], how ya goin'?

Protection Officer: Good, mate, good. We're just at Bankstown at the moment.

Area Controller: Ah, I've got one on the Down, due in about 6 minutes.

Protection Officer: All right I'll give you a call after he leaves.

Area Controller: And there's one also comes in, terminates Platform 1, I can give you platform 2 after that one on the Down comes through.

Protection Officer: No worries, well we could always do Platform 1 NAR, I've got two lookouts with me anyway.

Area Controller: Well there's one due in there...

Protection Officer: He normally, the terminator normally sits there for about 20 minutes, so..

Area Controller: No not that long, he'll be in there... couple of minutes? He's due out at 51.

Protection Officer: All right, well, I might wait. I'll give you a bell after they're both gone, eh?

Area Controller: Well you can give me a bell when the Down goes, I'll put a block on the Down and then you can..NAR.. do the Up NAR when the guy clears if you like and use

Protection Officer: Righto

Area Controller: as a Safe Place.

Protection Officer: Good man, alright, thanks a lot.

Area Controller: See ya.

Protection Officer: See ya.

- 1.28 The Area Controller informed the Protection Officer that there was a train due on the Down (Platform 2) in about six minutes (at 12:40am), and that the track could be made available for corridor cleaning under CSB after that train departed.
- 1.29 The Protection Officer raised the possibility of corridor cleaning near Platform 1 using NAR, as he said that he had two lookouts in his team. The Protection Officer and the Area Controller discussed the presence of a train at Platform 1, scheduled to depart at 12:51am. The Protection Officer suggested he would contact the Area Controller again when the trains had departed both Platform 1 and Platform 2, to which the Area Controller responded that the Protection Officer could phone him when the train on the Down departed and CSB would then be provided for work on the Down beside Platform 2, with the option of continuing onto the Up beside Platform 1 under NAR. The Protection Officer appeared to accept this arrangement.
- 1.30 Using his mobile phone, the Protection Officer phoned the Area Controller after the train on the Down had departed, and requested CSB on the Down. While the Protection Officer waited, the Area Controller contacted Train Control and arranged for the appropriate signals to be placed at STOP and blocking facilities applied, thus providing CSB protection for the workers on the Down. There was no further discussion of the work to be performed, or the protection to be used on the Up.
- 1.31 CSB was applied for work adjacent to Platform 2 at 12:45am and the team of four, accompanied by their Protection Officer, entered the corridor at the city end of Platform 2 and commenced rubbish removal along the Down.
- 1.32 As previously mentioned, under the contract the team was required to provide photographic "*before and after*" evidence of the work. During the five minutes required for the cleaners to work their way from the city end to the country end of Platform 2 the Protection Officer stopped to take photographs on a number of occasions. At 12:50am, as the rest of the team walked around the end of the platform from the Down towards the Up, the Protection Officer remained behind for approximately a further two minutes to take additional photographs.

- 1.33 When the four workers reached the Up side a train, later identified as Circular Quay to Bankstown via Regents Park service 42-W, was standing at Platform 1 (see *Photograph 2*). As the workers waited for this train to depart, their Protection Officer completed his work on Platform 2 and was following them across to Platform 1.
- 1.34 Shortly after 12:51am the train departed in the Down direction to enter the Bankstown loop in order to cross over to the Down line and continue on.



Photograph 2: Cleaners awaiting departure of 42-W

- 1.35 At 12:51:56am, immediately after departure of the train, the four workers moved towards the Up track and by 12:52:09 they were all on the track commencing litter removal with the Protection Officer not yet in sight. No Protection was in place. At 12:52:10 the Protection Officer came into view at the end of Platform 1 and walked up onto and along the platform beside where the other four were working. He stated in interview that his phone was not responding and he turned to see the workers in the Danger Zone and immediately reminded them of the Safe Place, using the words “*There’s your Safe Place*”. He then resumed his attempts to contact the Area Controller, impeded by poor phone signal strength. He stated that his intention had been for the workers to move to the nominated Safe Place until he had established CSB.

- 1.36 The workers stated in interview that they thought the Protection Officer had simply reminded them of the location of the designated Safe Place, and that CSB was already in place.
- 1.37 As CSB on the Down had not yet been fulfilled, the Area Controller would not have been aware that the workers had moved from the Down track and were now working on the Up.
- 1.38 At 12:52:45am the Protection Officer, who was now level with the workers picking up litter on and adjacent to the Up track, can be seen to stop and face the track and to take a photograph looking in the Up direction (see *Photograph 3*). He appeared again to be preoccupied with this task, and to give no attention to the workers despite them being directly in his field of view. He then turned and continued walking along the platform behind the workers.



Photograph 3: Protection Officer photographs the track

- 1.39 At 12:53:15am, having by then walked well past the workers, the Protection Officer turned around to face them and appeared to again take a photograph

using a camera held in his right hand (see *Photograph 4*) before looking down at his mobile phone in his left hand.



Photograph 4: Protection Officer photographs the track again

- 1.40 He then turned away from the track and continued along the platform in the Up direction, walking away from the edge of the platform. He continued to appear preoccupied, and to show no awareness of the fact that the workers were on the track with no protection arrangement in place.
- 1.41 At the same time empty CityRail passenger train 31-Y, travelling from Regents Park to Sydenham after having been used for points cleaning, was approaching Bankstown Platform 1 in the Up direction. The train was reported by the driver to have been travelling at approximately 55km/h.
- 1.42 At 12:53:38am the driver of 31-Y saw the workers on the track at a distance estimated at approximately 200 metres, sounded the train's whistle, and commenced emergency braking.

- 1.43 On hearing the train whistle, the Protection Officer immediately moved back to the edge of the platform to warn his team while the workers, having also heard the train whistle, moved quickly off the track to a safe location in the Up cess.
- 1.44 Train 31-Y came to a stand just before reaching Platform 1 at 12:53:55am, approximately 60 metres from the workers⁴, and was subsequently signalled by the Protection Officer to proceed, which it did at 12:54:20am (see *Photograph 5*).



Photograph 5: 31-Y comes to a stand in view of cleaners

- 1.45 The workers returned to their corridor cleaning work at 12:55:05am, walking in the Up direction with the Protection Officer continuing to walk along the platform beside them, appearing to speak on his mobile phone as he walked, and frequently turning to look in the Down direction for any approaching trains. As CSB had not been established for this work, the workers had no protection in place.
- 1.46 The driver of 31-Y contacted the Area Controller at Sydenham to inform him of the incident. Although he didn't claim it to be a near miss and indicated that

⁴ The distance of 60 metres was calculated by reference to CCTV records showing the locations of the train and the workers.

he was fit to continue his duties, his concern, expressed in the transcript below, was apparent.

Area Controller: Thirty one Yankee Sydenham receive, over.

Driver: 31, ahh.. just want to report that when approaching ahh.. the Up there at Bankstown there were people, cleaners in the actual four foot cleaning.

Area Controller: Yep. In the Up track?

Driver: Yeah on the Up.

Area Controller: Right

Driver: Yeah where I'm headin now is I just threw it into emergency 'cause about half a dozen in the four foot right in the middle of the platform.

Area Controller: Uum, OK. Supposed to be working under NAR around there so obviously their lookout's not doing a good job, how close were they to you?

Driver: Um, well I saw them as I came around the corner

Area Controller: Yep

Driver: so I probably would have been, probably about a train length away, but, I mean like, I wasn't stoppin' so I was doin' like 55

Area Controller: Yep

Driver: (indecipherable) so, you know, NAR wouldn't have mattered there.

Area Controller: OK. Um.. you right to continue?

Driver: We're right, we're out of there now.

Area Controller: Not reporting a near miss?

Driver: No, no, no I pulled up well before them, but..

Area Controller: But, um, you still had..

Driver: They got more of a shock than I did.

Area Controller: OK. No worries.

Driver: OK.

Area Controller: Thanks, mate.

Driver: 31 out.

Area Controller: Sydenham out.

1.47 The Area Controller then contacted the Protection Officer and discussed the incident. A transcription of the voice record of their conversation follows:

Protection Officer: How ya goin' mate?

Area Controller: Good, [REDACTED]. How ya goin'?

Protection Officer: Not too bad.

Area Controller: Ah... what's goin' on round there, everything all right?

Protection Officer: Yeah, yeah, just, um, just about finished up here now.

Area Controller: OK. Driver of 31 just rang me, which is the one on the up there.

Protection Officer: Yeah he come around the corner and uh, jumped on his horn.

Area Controller: Goodo, mate.

Protection Officer: We had a, we got a Safe Place here, and no dramas here at all.

Area Controller: OK. He said he had to hit the emergencies.

Protection Officer: Oh, really?

Area Controller: Yeah.

Protection Officer: Right.

Area Controller: You guys, how, how close he get to ya?

Protection Officer: Oh he was, he was probably 200, 200 metres.

Area Controller: OK.

Protection Officer: when he pulled up, when we seen him, he pulled up about, he pulled up at the end of the platform,

Area Controller: OK.

Protection Officer: and then, and then proceeded through the platform.

Area Controller: Right. Have you got plenty of vision there, what was goin' on with the lookout

Protection Officer: Yeah, yeah, well we've got um easily, easily 300, 300 and something metres I'd say

Area Controller: OK

Protection Officer: 300 to 3.. 300 to 400 I'd say.

Area Controller: All right. No worries. Um, OK. I'll leave you to it.

Protection Officer: Alright mate. We're just about clear here now, just say.. (louder) boys just get clear! And we'll fulfil it here at Bankstown and ...

Area Controller: Fulfilled CSB

Protection Officer: .. go to Lidcombe.

Area Controller: OK Platform 2 Bankstown 00:57. I'll remove my blocks on the Down Banker there.

Protection Officer: Good man. Thank you.

Area Controller: Thanks.

Protection Officer: See ya.

- 1.48 This transcript is consistent with the Area Controller assuming that the work was being done under NAR, as this was the impression left by their previous conversation.
- 1.49 The Protection Officer, who in this conversation sounded flustered, said nothing to correct the Area Controller's impression that the work was being performed under NAR. This is in contrast with his statement shortly after the incident, reported by RailCorp⁵, that he was about to request CSB when the incident occurred.
- 1.50 It is clear from examination of CCTV records that, prior to the incident, neither the Protection Officer nor any of the other workers was acting as a Lookout. Furthermore, the Worksite Protection Plan (WPP) has no calculation of minimum warning time, which would have been necessary in order to establish NAR.
- 1.51 There were no further train movements on the Up line at Bankstown until after 1:09am, by which time the workers had been clear of the track for over 10 minutes.
- 1.52 After completing their corridor cleaning work at Bankstown, the Swetha crew drove to Lidcombe to continue their work. Meanwhile, the Area Controller discussed the incident with the Train Controller, who in turn spoke to the Shift Manager. As a consequence the on-call Network Operations Superintendent for the Illawarra line travelled to Bankstown to investigate the incident, and the Swetha crew was instructed to return to Bankstown. On arrival the workers were removed from safeworking duties, and the Protection Officer and Lookout⁶ had their Certificates of Competency removed.

Medical and toxicological information

- 1.53 The Protection Officer and the Lookout were breath tested, both returning a zero reading for the presence of alcohol. Blood samples were also taken for drug testing and when analysed showed no presence of illicit substances.

⁵ Reported in RailCorp NIN Report 1020120 of 29/10/2010.

⁶ One of the workers had been designated as Lookout but had not been required to perform Lookout duties, due to the work methods chosen.

- 1.54 The Protection Officer declared that he had taken an antihistamine on the morning of the previous day. Consumer medical information published by the Royal Australian College of General Practitioners indicates that the particular product used was classed as non-sedating, with no side effects likely to have adversely affected his work performance.

PART 2 FACTORS RELATING TO THE INCIDENT

Worksite protection

- 2.1 Under its Station Corridor Cleaning contract with RailCorp, any work performed by Swetha required the implementation of worksite protection in compliance with RailCorp Network Rule NWT 300 *Planning Work in the Rail Corridor*, the fundamental requirement being that the work must be assessed for safety and for its potential to intrude on the Danger Zone.
- 2.2 Work must not be carried out in the Danger Zone unless there is a Safe Place that can be easily reached, or rail traffic is excluded.
- 2.3 If work is to be carried out in the Danger Zone the worksite must have a Protection Officer, who is responsible for keeping the workers safe by making a safety assessment and ensuring that the work is done safely, and who must ensure that other work does not interfere with these duties. The Protection Officer must also maintain records of the protection arrangements implemented.
- 2.4 Work in the Danger Zone must be planned and can be carried out using one of five methods of worksite protection. In summary, the available protection methods at the time of the incident were as follows:
 - a. Local Possession Authority (LPA), which must be advertised at least a week in advance in a Special Train Notice, and in which a defined portion of track is closed for a specified period. This method was routinely used by RailCorp to conduct track maintenance including corridor cleaning at City Circle and Eastern Suburbs stations where the work could be planned in advance and the timetable permitted closing of the track in the early hours of the morning without disrupting services.
 - b. Track Occupancy Authority (TOA), which is issued to a Protection Officer for an agreed period and grants exclusive or joint occupancy of a track between specified limits, and involves the application of blocking facilities to prevent the entry of rail traffic. Implementation of this

method of protection requires the placement of warning devices such as flags and detonators, and the recovery of these devices on completion of the work.

- c. Track Work Authority (TWA), which gives non-exclusive occupation of a defined portion of track between rail traffic movements, and requires protection by means of a combination of protective signals, handsignallers and detonators.
- d. Controlled Signal Blocking (CSB), to permit vehicles or animals to cross the track or for work requiring nothing more than light tools. For work such as corridor cleaning, protection of the workers without use of a lookout must be provided by means of two consecutive controlled signals set at STOP with blocking facilities applied, or an ESML handle removed to exclude rail traffic, or one controlled signal set at STOP with blocking facilities applied together with a set of points secured to prevent access. If a lookout is used, it suffices to have one controlled signal set at STOP with blocking facilities applied, together with an easily-reached Safe Place. One critical element of the application of CSB is the need for the Protection Officer to obtain an assurance from the Signaller that there is no traffic already in the section at the time that the blocks are applied.
- e. No Authority Required (NAR), which permits work in the Danger Zone without a work on track authority, using lookouts as the safety measure. The work must require no more than light, non-powered tools, and an easily-reached Safe Place must be available.

2.5 It should be noted that following an incident resulting in the death of a Swetha employee at Kogarah in April 2010, worksite protection arrangements for litter cleanup at night had been reviewed by both RailCorp and Swetha. Furthermore, a Staff Notice was issued by Swetha on 22 April 2010, prohibiting the use of NAR for such work until further notice.

2.6 Key Swetha personnel then met on 10 May 2010 and agreed that the minimum standard of protection for such work would be CSB, and that no

corridor cleaning at night would be done under NAR. The Protection Officer was present at this meeting.

- 2.7 A further Staff Notice was issued on 26 July 2010, confirming the prohibition of NAR as a means of protection for night time corridor cleanup work.
- 2.8 In August 2010 RailCorp issued SafeTracks Bulletin 09, announcing that following a double fatality at Singleton in 2007, the need for improvements to NAR had been identified. As a consequence, in December 2010 NAR was to be replaced by a new procedure to be called Lookout Working, with RailCorp Network Rule NWT 310 to be amended accordingly.
- 2.9 Under Lookout Working the Protection Officer would be required to discuss the protection method with the Network Control Officer, and calculate the Minimum Warning Time needed. Additional Lookouts would be limited to one in each direction of approach, and a Lookout would not be permitted to work continuously at the same location for more than 60 minutes.
- 2.10 In conjunction with the introduction of Lookout Working, changes would be made to RailCorp Network Procedure NPR 711 which describes the procedure for using Lookouts. Under the revised NPR 711, Lookouts would be required to have two effective independent means, not including radios or telephones, by which to warn workers. Furthermore, the Lookout would be required to inform the Protection Officer of any change in conditions such as visibility or the need to relocate, and all workers and their equipment would be required to be in a Safe Place before the Lookout gave an “all clear” hand signal to a train driver.
- 2.11 Although these changes had not yet been implemented, the fact that they had been communicated to RailCorp workers and contractors highlighted an atmosphere of concern about work being performed under NAR, and reinforced the agreement between RailCorp and Swetha that NAR should not be used at night for work under the Station Corridor Cleaning contract.
- 2.12 Thus the minimum level of protection that was available to the work group for work in the Danger Zone was CSB. It is therefore surprising that the possibility of working under NAR at Bankstown arose in the Protection Officer’s conversation with the Area Controller on the night in question. When

asked about this in interview, the Protection Officer referred to a method occasionally employed where a stationary train beside Platform 1 would be used to create a Safe Place beside it, and litter collection could be performed in the corridor beside the train. In reality work under these conditions would not require use of NAR as it would no longer constitute work in the Danger Zone. However, it would require a safety assessment to be performed and documented prior to commencement

- 2.13 It is also surprising that, after the incident, the workers returned to the track with no means of protection and continued to work. It was not until the Area Controller contacted the Protection Officer at 12:56:10 and the conversation recorded in *paragraph 1.48* took place, that the workers were finally told by the Protection Officer to move off the track.

The worksite protection plan

- 2.14 The Protection Officer is required, under RailCorp Network Rule NWT 300 *Planning work in the Rail Corridor*, to make and record a site-specific safety assessment before commencing work. If the work to be performed has not been adequately described in a recognised Safe Work Method Statement or Safe Work Instruction, the safety assessment must be recorded on a Worksite Protection Plan (WPP). The WPP may be prepared immediately before the work, or in advance.
- 2.15 In this case, generic WPPs had been prepared by the Protection Officer for a number of worksites, with the fields for information such as dates, times, weather and signatures left blank. These source documents were then copied and completed at the commencement of each shift as required. For example, the Bankstown WPP used at the time of the incident shared a source with one used two weeks earlier, and WPPs used at Bankstown on four other occasions during the same month shared another common source.
- 2.16 The WPP was based on worksite protection being provided by CSB using either two signals at stop, or one signal with a lookout and an identified Safe Place. The plan identified a Safe Place located beside each of the tracks. A

track speed of 80km/h⁷ and a minimum sight distance of 600m were also entered on the form, but no minimum warning time was specified. The information contained on the form was consistent with previous Worksite Protection Plans prepared by the same Protection Officer for previous corridor cleaning work at Bankstown.

- 2.17 The form was dated 28.10.10 rather than 29.10.10 as it was completed and signed before midnight, prior to commencing work at Lakemba.
- 2.18 It is noted that WPPs must be retained by Protection Officers for a minimum of seven years, and must be provided to RailCorp for review purposes.⁸

The pre-work briefing

- 2.19 RailCorp's Safety Management System requires that, if work is to be done in the Rail Corridor, workers must be briefed by the Protection Officer about the safety measures in place and how the work is to be protected.⁹ Workers must also be briefed by the work supervisor on the work method to be used. These briefings must be documented. In this case the work supervisor was also the Protection Officer, making it possible to conduct the briefings concurrently and to document them on a single form.
- 2.20 As was the case for the WPP, the Pre-work Briefing was dated 28.10.10, and was prepared before commencing work at Lakemba prior to travelling to Bankstown. It stated that it was to cover work locations of Lakemba, Bankstown, Lidcombe, Flemington and Strathfield, and was signed by the four workers who were to work with the Protection Officer that night.
- 2.21 Unlike the WPP, the document was completed entirely at the time of the briefing, rather than having been partly prepared in advance and used on multiple occasions. However, a review of Pre-work Briefings prepared by the same Protection Officer in the month prior to the incident showed that many, including some for work at Bankstown, had been copied from a single source

⁷ A track speed of 80km/h is incorrect for the Up line, for which a speed of 60km/h is established by a speed board approximately 2km before the station.

⁸ RailCorp document SMS-12-GD-1449, *System Guide, Worksite Protection Plans*, paragraph 2.1.2.

⁹ RailCorp document SMS-12-GD-1449, *System Guide, Worksite Protection Plans*, Section 3.

document with the work location, date, names of workers and signatures to be written in when the briefing was conducted.

- 2.22 The briefing identified the hazard of being struck by a train, and set out the use of CSB as the control to be implemented in order to reduce the risk to the lowest practicable level. The briefing did not indicate which of the available forms CSB was to take, and in particular whether a lookout and a Safe Place would be utilised.
- 2.23 The Pre-work Briefing documents copied from a common source identified the controls to be implemented for the hazard of being struck by a train, to be “*NAR – CSB – LPA as per Worksite Protection Plan*”. This is considered by OTSI to be a poor practice, as nowhere is the chosen protection identified on the form, leaving open the possibility that it was not covered in the briefing and not clearly identified to the workers. Furthermore, on occasions where the WPP was also copied from an earlier source document, the conduct of the briefing is further removed from the documented decision concerning the protection method to be used.
- 2.24 At the time Swetha commenced working on the Station Corridor Cleaning contract, the forms used to record Pre-work Briefings and Worksite Protection Plans were Swetha forms, provided in a pad with paired and serially numbered sets of forms so that the Pre-work Briefing and Worksite Protection Plan for a particular task shared a common serial number. This reinforced the close relationship between the Pre-work Briefing and the WPP. This practice ceased shortly after commencing work under the contract, when RailCorp requested that their forms be used, but has been re-introduced using modified RailCorp forms since this incident.

Communication

- 2.25 Network Rule NGE 204 *Network Communication*, prescribes the rules for communication in the RailCorp network. Its fundamental principles are that communication must be clear, brief and unambiguous, that it must be relevant, and that its meaning must be agreed before being acted upon. This latter principle requires that in some specified circumstances the receiver must confirm the content of a message by repeating the message back to the

sender, and that the receiver must not act on the communication until the sender confirms the message has been repeated correctly. These circumstances include communication about a work on track method such as CSB and NAR, the two methods mentioned in communication between the Protection Officer and the Area Controller in this incident.

- 2.26 Principles of communication are further prescribed in RailCorp Network Procedure NPR 721 *Spoken and written communication*, which sets out in detail the protocols to be utilised and standard terms to be used.
- 2.27 When CSB was obtained for the corridor cleaning task at Lakemba, the conversation between the Protection Officer and the Area Controller, as reported in *paragraph 1.26*, was considerably less formal than specified in NGE 204, and didn't follow the protocols set out in NPR 721. In this instance, contrary to the usual procedure, the Protection Officer was requested to remain on-line and listen to the Area Controller's communication with the Train Controller in which he established CSB, and was simply asked if he had heard the communication. The Area Controller paraphrased the arrangements thus: "You're right to go on. Double oh nine Lakemba Up and Down Bankers blocked CSB applied." The message was not repeated back to the Area Controller for confirmation, nor did the Protection Officer ask for confirmation that there was no rail traffic between the protecting signals and the worksite as required in Network Rule NWT 308, although he had presumably overhead the Train Controller inform the Area Controller that this was the case.
- 2.28 In a number of recent investigations by OTSI into rail safety incidents, poor communication has been identified as a contributing factor. Examples are:
- Glenlee, October 2009, where a safeworking breach occurred and OTSI's report noted that "*poor voice communication practices and non-adherence to protocols were identified as commonplace among controllers and train crews*".¹⁰

¹⁰ OTSI Rail Safety Investigation Report, *Safeworking Breach, Glenlee, 28 October 2009*.

- Strathfield, 1 April 2010, where the OTSI report stated that “*communications between the Area Controller and Protection Officer were conversational and informal, lacking the rigour required by NPR 721*”.¹¹
- Kogarah, 13 April 2010, where the PO did not obtain confirmation that CSB had been fully implemented and that there was no train in the blocked section, and a track worker died after being hit by a train that was already in the section when the block was applied.¹²

2.29 If indeed, as claimed at interview, the PO had told his team to move from the Danger Zone on the Up track to a Safe Place, the intended instruction conveyed by the words used (“*There’s your Safe Place*”) was open to misinterpretation. In fact, the other workers stated when interviewed that they believed the words used were simply to remind them of the location of the Safe Place, rather than an instruction to move there.

2.30 It is noted that the communication protocols set out in *NGE 204* and *NPR 721* and described earlier implicitly, or in the case of *NPR 721*, explicitly, relate to written, radio and telephone communication. There is no mention of a similar need for clarity in direct spoken communication.

Work patterns and fatigue

2.31 It is a requirement of the *Rail Safety Act 2008* that rail safety workers be provided with a program for the management of fatigue, complying with the requirements of *Rail Safety (General) Regulation 2008*. The program must include provision for the following;

- a. safe hours of work,
- b. safe periods of time between shifts,
- c. work scheduling that provides the availability of sufficient rail safety workers to meet foreseeable demands, and
- d. an appropriate balance between the duties and the commercial and operational needs of the operator.

¹¹ OTSI Rail Safety Investigation Report, *Near Strike with Signal Maintenance Staff, Strathfield, 1 April 2010*.

¹² OTSI Rail Safety Investigation Report, *Track Worker Fatality, Kogarah, 13 April 2010*.

- 2.32 Hours of work or periods of time between shifts are taken to be safe if the effect of implementing those hours or periods is sufficient to eliminate, manage or control risks to safety arising from fatigue.
- 2.33 Due to human biological processes that reduce alertness, work performed at night and in the early hours of the morning incurs a higher measure of fatigue-related risk. Fatigue models are a useful tool in assessing and managing this risk, but their limitations must be understood, and other sources of relevant information considered. As discussed in the Independent Transport Safety Regulator's (ITSR's) *Transport Safety Alert 34*,¹³ "*operators who use models should obtain information on the appropriate use of the model relative to the current state of knowledge of human fatigue. This information will help determine how much a model can be relied on for different types of fatigue risk management decisions and what other information is needed*".
- 2.34 The Protection Officer and three of the other workers had worked from 10:00pm to 04:00am on the two nights preceding the incident, and had been rostered to work the same hours on the night of the incident. Prior to that they had a day free, before which they had worked a total of 12 daytime hours over two days.
- 2.35 The remaining worker had not worked on the night preceding the incident, and had worked for six hours the night before that. Prior to that night he had three days off.
- 2.36 RailCorp uses the Fatigue Audit InterDyne (FAID) software as a component of its fatigue monitoring program. While FAID scores should not be used as the sole basis for risk management, they can assist in identifying the propensity for fatigue to become a factor in human work performance and so inform risk management processes. Recent research has identified the fatigue threshold for FAID as represented by a score of approximately 60.¹⁴
- 2.37 Fatigue scores using the FAID tool were calculated for the track workers, with the highest scores, at 48, being shared by the Protection Officer and one other

¹³ NSW Independent Transport Safety Regulator, *Transport Safety Alert 34, "Use of bio-mathematical models in managing risks of human fatigue in the workplace"*, 27 July 2010.

¹⁴ Federal Railroad Administration, *Procedures for Validation and Calibration of Human Fatigue Models: The Fatigue Audit InterDyne Tool*, Final Report, DOT/FRA/ORD-10/14, November 2010.

worker. Although these values are well within the acceptable range, this does not eliminate the possibility of fatigue due to influences outside the workplace, and therefore not factored into the FAID scores.

- 2.38 In order to give consideration to this aspect, the Protection Officer was questioned in detail about his sleep patterns and other activities when working night shifts. He stated that he slept well, usually for at least eight hours, and was in the habit of having a "double shot" of espresso coffee before commencing the shift, and had done so before this shift. He also said he would on occasions have coffee again after the shift, before or during the drive home, if he was feeling at all sleepy. He further stated that he had not been subject to any unusual stresses that would cause him to be fatigued or distracted, and had no health concerns.
- 2.39 Voice logs and CCTV footage relating to the incident were examined, with recorded conversations between the Protection Officer and the Area Controller showing the Protection Officer to be alert and responsive. Video records, while indicating the possibility of preoccupation or distraction, also gave no evidence of fatigue.
- 2.40 The work pattern of the Area Controller in the period leading up to the incident was also examined. The Area Controller had worked 8-hour shifts on the five preceding days, with the two most recent ones being from 2:00pm to 10:00pm. His FAID score when he commenced the shift during which the incident occurred was 52. He came on duty at 2:00pm on 28 October 2010, and was rostered to work a 12-hour shift which would have resulted in a FAID score of 59 at the end of the shift. He had worked a similar pattern the previous week. No other factors were identified that would indicate the Area Controller's work performance may have been affected by fatigue.

Distraction

- 2.41 The Protection Officer was involved in a number of tasks that each demanded his attention:

- a. He was responsible for the safety of his work team who had a task to perform on a track that was, at that stage, still unprotected and open for rail traffic.
- b. He was taking photographs of the condition of the Up line as part of the litter collection contract.
- c. He was endeavouring to contact the Area Controller by mobile telephone to fulfil the CSB protection on the Down line, and was having difficulty finding a location with adequate reception.

2.42 The PO stated in interview that he had intended providing CSB protection for his team. This is consistent with his stated intention of working under CSB for both Lakemba and Bankstown made when obtaining protection for Lakemba prior to moving on to Bankstown. He also requested CSB for the Up line at Bankstown at the time when he obtained protection for work on the Down line. However, he had also mentioned NAR, despite this having been withdrawn from use for night work under the Station Corridor Cleaning contract.

2.43 It is clear that, whatever his intention, no protection had yet been provided, and for some reason the PO seemed to be oblivious for some time to the fact that the other members of his team were on the Up line without protection. At interview he stated that he became aware of the workers moving onto the track and signalled to them to move out of the Danger Zone by pointing and using the words "*There's your Safe Place*". However when the workers failed to move off the track he took no further action, returning instead to his other tasks of taking photographs and trying to telephone the Area Controller.

2.44 Even after the PO had given train 31-Y the "All Clear" hand signal and the train had departed, his level of distraction continued as the workers returned to the Danger Zone and he gestured for them to continue their work as he tried to contact the Area Controller on his mobile phone. It was not until the Area Controller contacted him by phone and discussed the incident with him, that he finally instructed the workers to move from the Danger Zone. When interviewed he had no explanation for his actions, which he insisted were completely out of character.

- 2.45 The PO's primary responsibility under RailCorp's NWT 300 *Planning work in the Rail Corridor*, is "to keep the worksite and workers safe". NWT 300 further states that "*The Protection Officer must be satisfied other work will not interfere with protection duties*". It would appear that on this occasion the distraction of other tasks had drawn the PO's attention away from his primary responsibility to such a degree that he was not conscious of the potential danger to his team on the 'live' Up line.
- 2.46 The Protection Officer was very experienced, and had performed this combination of tasks on many occasions.¹⁵ As far as can be determined, his acting contrary to established procedures and to his training was out of character. To remove the sources of distraction by relieving a Protection Officer of all other duties ignores the fact that the dual role of Supervisor and Protection Officer has existed and continues to exist successfully. Although such a separation of duties may have prevented this particular incident, this is by no means certain and, in any event, is not considered to be justified by the circumstances of this incident. In this case the distraction of other duties only became an issue due to the Protection Officer's failure to clearly and unambiguously communicate to the workers that they were to remain in a Safe Place until CSB had been established and he had instructed them to commence work.

¹⁵ The Protection Officer had joined Swetha as a Protection Officer Level 4 in 1999, with seven years prior experience in RailCorp.

PART 3 OTHER ISSUES

Consistency of regulation

- 3.1 Subsequent to this incident RailCorp introduced Lookout Working to replace NAR, and the Australian Rail Track Corporation (ARTC) introduced their equivalent procedure by means of an amendment to their document ANWT 310, both effective from 19 December 2010. There were, however, two significant differences between the RailCorp and ARTC implementations of Lookout Working:
- a. ARTC prohibited the use of Lookout Working outside daylight hours, and
 - b. ARTC imposed a time limit of two hours, after which a new access request would be required.
- 3.2 The replacement of NAR by Lookout Working, and the use of CSB as a minimum worksite protection protocol for litter collection at night under the RailCorp/Swetha contract, results in potentially confusing variations in rules. A worker could now be subject to three different sets of rules for work requiring the use of no more than light non-powered hand tools, depending on the specific task to be performed, the time of day and the employer. For example:
- a. A worker employed by Swetha could work under Lookout Working for an unrestricted duration while performing night work other than on the Station Corridor Cleaning contract.
 - b. The same worker, working on the RailCorp Station Corridor Cleaning contract at night, and possibly at the same location, would have CSB as the minimum permitted level of protection.
 - c. If working under ARTC jurisdiction, the same worker would not be permitted to do any work outside daylight hours under Lookout Working, and would be limited to two hours of work under a single access request during daylight hours.

- 3.3 The existence of these differences in procedure is inconsistent with the stated objective of Part 5 of the *Rail Safety (General) Regulation 2008* which is “to improve the safe development of network rules of rail infrastructure owners by:
- (a) *promoting the consistent development and implementation of network rules by rail infrastructure owners,*
 - (b) *facilitating co-operation between rail infrastructure owners to ensure that changes to network rules are effectively managed and implemented, and*
 - (c) *ensuring (so far as is reasonably practicable) that the same network rules apply to the whole of the NSW Rail Network.”¹⁶*

¹⁶ The term “network rules” as defined in Section 32 of the *Rail Safety (General) Regulation 2008* includes procedures relating to rail network operations, as adopted and made by rail infrastructure owners.

PART 4 FINDINGS

Immediate cause

- 4.1 The near miss occurred because when the track workers commenced work on a live section of track without any form of worksite protection, their Protection Officer did not ensure their immediate movement to a Safe Place.

Contributory factors

- 4.2 The Protection Officer was distracted by the need to communicate with the Area Controller to fulfil the CSB protection that had been provided for the then completed work on the Down track, and by the need to take “before and after” photographs of the corridor as part of the Station Corridor Cleaning contract. As a consequence he did not fulfil his primary task which was to provide a safe working environment for his team.
- 4.3 The Protection Officer’s attempts to contact the Area Controller to fulfil CSB arrangements on the Down track and to arrange for CSB on the Up track were delayed by his inability to find a location with an adequate mobile phone service.
- 4.4 The track workers proceeded onto the track to commence work without first checking whether protection had been established, assuming that Controlled Signal Blocking as shown on the Worksite Protection Plan had been put in place. It is noted that Swetha regularly addresses this issue as a standing item in ‘Toolbox Talks’ and Staff Notices, and had done so in detail in Staff Notice 143 relating specifically to CSB protection, issued on 4 May 2010.
- 4.5 The manner of spoken communication between the Protection Officer and the track workers lacked precision and clarity, resulting in misinterpretation. For example, the Protection Officer addressed the track workers using the words “*There’s your Safe Place*” when his stated intention was to instruct them to go to the designated Safe Place, whereas the track workers assumed he was simply reminding them of the location of the Safe Place.

Anticipation and management of risk

- 4.6 An agreement between RailCorp and Swetha that work was not to be performed under No Authority Required protection provided clear guidance as to the appropriate level of protection to be utilised on the night of the incident. However, the Protection Officer's discussion of protection methods with the Area Controller was ambiguous, leaving the Area Controller to understand that work on the Up track at Bankstown was to be performed under NAR.
- 4.7 The preparation of Worksite Protection Plans and conduct of Pre-work Briefings using forms partly copied from earlier jobs and finalised on the way to the worksite provided the benefits of time saving and consistency. However, this can make it easy to overlook unanticipated issues specific to a worksite at a particular time, and can also result in a lack of precision (e.g. worksite to be protected by "*NAR-CSB-LPA as per Worksite Protection Plan*") with no clear understanding by team members as to the specific measures to be used.
- 4.8 Failure to follow specified communication protocols by using informal language and neglecting to repeat back key elements such as protection measures to be used and other safety critical information can result in ambiguity and misunderstanding. This is a matter that is clearly expressed in RailCorp documentation and covered in training, and has been emphasised in information bulletins, but remains a significant issue.

Incident response

- 4.9 The driver of 31-Y acted quickly to alert the track workers by sounding the train's whistle. He also applied emergency braking, and brought the train to a safe stop well short of the workers. Although the driver didn't classify the incident as a "near miss" he considered it serious enough to notify the Area Controller.
- 4.10 The workers moved to the designated Safe Place immediately on hearing the whistle of the approaching train.
- 4.11 The Protection Officer acted quickly to ensure the workers moved to the Safe Place immediately on hearing the train's whistle.

- 4.12 After 31-Y had departed Bankstown, and before the Protection Officer had spoken to the Area Controller and fulfilled the CSB protection on the Down track, the workers returned to the Up track to complete their work. The Protection Officer now appeared to be acting as a lookout. These actions were not consistent with the decision to use a minimum of Controlled Signal Blocking as protection when performing night-time corridor cleaning. The Protection Officer also continued his task of taking photographs of the corridor before and after cleaning, contrary to the clear stipulation in RailCorp Network Rule NPR 711 that *“Lookouts do no work other than look for, and give warning about, the approach of rail traffic.”*
- 4.13 The initial actions taken by RailCorp staff in response to the Area Controller’s reporting of the incident were appropriate and timely.

PART 5 RECOMMENDATIONS

The following recommendations are made in relation to matters identified in the course of this investigation.

Swetha

- 5.1 Reinforce, by means of site inspection and audit, the requirement that Protection Officers accurately record worksite protection arrangements on a Worksite Protection Plan, clearly communicate these arrangements to workers through a Pre-work Briefing, and review the Worksite Protection Plan and conduct a further briefing should it be found necessary to alter these arrangements.
- 5.2 Continue to regularly remind all track workers not to enter the danger zone until the Protection Officer has instructed them to do so and has advised them that the planned worksite protection is in place.
- 5.3 Review and where necessary amend training methods and material relating to communication so that they specifically address the importance of effectiveness in direct spoken communication.

RailCorp

- 5.4 Amend the content of Network Procedure NPR 721, *Spoken and written communication*, to emphasise the importance of effectiveness in direct spoken communication.

ITSR

- 5.5 Work with rail infrastructure owners to ensure that, so far as is reasonably practicable, network rules, particularly those relating to work in the Danger Zone, are consistent across the NSW rail network.

PART 6 APPENDICES

Appendix 1: Sources and submissions

Sources of information

- Bureau of Meteorology
- Independent Transport Safety Regulator
- RailCorp
- Swetha International Pty Ltd

Submissions

The Chief investigator forwarded a copy of the Draft Report to the Directly Involved Parties (DIPs) to provide them with the opportunity to contribute to the compilation of the Final Report by verifying the factual information, scrutinising the analysis, findings and recommendations, and to submit recommendations for amendments to the Draft Report that they believed would enhance the accuracy, logic, integrity and resilience of the Investigation Report. The following DIPs were invited to make submissions on the Draft Report:

- RailCorp
- Swetha International
- The Independent Transport Safety Regulator
- The Protection Officer

Submissions were received from RailCorp, Swetha International and the Independent Transport Safety Regulator. The Chief Investigator considered all representations made by DIPs and responded to the author of each of the submissions advising which of their recommended amendments would be incorporated in the Final Report, and those that would not. Where any recommended amendment was excluded, the reasons for doing so were explained.