



Office of Transport Safety Investigations



RAIL SAFETY INVESTIGATION REPORT

NEAR HIT WITH WORKERS ON TRACK

SUMMIT TANK TO DOMBARTON SECTION

17 JULY 2012

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THE OFFICE OF TRANSPORT SAFETY INVESTIGATIONS

The Office of Transport Safety Investigations (OTSI) is an independent NSW agency whose purpose is to improve transport safety through the investigation of accidents and incidents in the rail, bus and ferry industries. OTSI investigations are independent of regulatory, operator or other external entities.

Established on 1 January 2004 by the Transport Administration Act 1988, and confirmed by amending legislation as an independent statutory office on 1 July 2005, OTSI is responsible for determining the causes and contributing factors of accidents and to make recommendations for the implementation of remedial safety action to prevent recurrence. Importantly, however, OTSI does not confine itself to the consideration of just those matters that caused or contributed to a particular accident; it also seeks to identify any transport safety matters which, if left unaddressed, might contribute to other accidents.

This OTSI investigation was conducted under powers conferred by the Rail Safety Act 2008 and the Passenger Transport Act 1990. OTSI investigators normally seek to obtain information cooperatively when conducting an accident investigation. However, where it is necessary to do so, OTSI investigators may exercise statutory powers to interview persons, enter premises and examine and retain physical and documentary evidence.

It is not within OTSI's jurisdiction, nor an object of its investigations, to apportion blame or determine liability. At all times, OTSI's investigation reports strive to reflect a "Just Culture" approach to the investigative process by balancing the presentation of potentially judgemental material in a manner that properly explains what happened, and why, in a fair and unbiased manner.

Once OTSI has completed an investigation, its report is provided to the NSW Minister for Transport for tabling in Parliament. The Minister is required to table the report in both Houses of the NSW Parliament within seven days of receiving it. Following tabling, the report is published on OTSI's website at www.otsi.nsw.gov.au.

OTSI cannot compel any party to implement its recommendations and its investigative responsibilities do not extend to overseeing the implementation of recommendations it makes in its investigation reports. However, OTSI takes a close interest in the extent to which its recommendations have been accepted and acted upon. In addition, a mechanism exists through which OTSI is provided with formal advice by the Independent Transport Safety Regulator (ITSR) in relation to the status of actions taken by those parties to whom its recommendations are directed.

ABSTRACT

On 17 July 2012, a Pacific National (PN) freight train narrowly missed hitting a party of three workers who were standing on a viaduct on the line between Moss Vale and Unanderra. When they became aware of the approaching train, they quickly made their way off the viaduct and cleared it just ahead of the train reaching the viaduct. The investigation into the incident established that appropriate worksite protection arrangements had not been established for the group on the track.

This is the sixth worksite protection incident investigated by OTSI in the past four years and again highlights the dangers that are created when network rules and procedures, that are designed to protect work and workers on track, are not complied with. The incident also highlights the need for rail operators to monitor the competence and compliance of their employees on a regular basis through spot checking and auditing of worksite protection planning and implementation.

The Incident

Shortly after 1400¹ on 17 July 2012, the three workers commenced an inspection of a rail viaduct located in the section between Summit Tank and Dombarton on the Unanderra to Moss Vale Branch line. This was one of several site inspections which had been organised and supervised by an Australian Rail Track Corporation (ARTC) Structures Manager to allow two contractors to familiarise themselves with site conditions so that they could quote on the works required to effect repairs to various bridges, viaducts and other rail structures. When it was necessary during the site inspections, the Structures Manager also performed the duties of Protection Officer.

During the inspection of the viaduct, the contractors became concerned about the apparent structural damage to the first pier at the Country end of the viaduct and explained their need to examine the damage from track level. Shortly afterwards, they walked up onto the viaduct and along the walkway immediately beside the track for approximately 10m until they were directly above the damaged pier. The ARTC Structures Manager (henceforth generally referred to as the Protection Officer) followed the two contractors up onto the walkway.

¹ The 24-hour clock is used in this report and the times referred to are in Australian Eastern Daylight-saving Time, 10 hours ahead of Coordinated Universal Time (UTC+10 hours).

At approximately 1448, Port Kembla-bound Pacific National (PN) bulk freight service 2928N approached the viaduct from the Country end while the three workers were on the viaduct directly ahead of it. When the train driver saw them on the viaduct, he immediately blew the horn and applied the brakes. On becoming aware of the train, the three workers turned and, seeing the train approaching, immediately moved quickly towards the Country end of the viaduct (towards the oncoming train). All three men were able to step to safety clear of the end of the viaduct with the train approximately 5m from them.

No one was injured in the incident.

After the Incident

Although surprised and upset by the incident, the train Driver immediately reported it to the Network Controller at ARTC's Network Control Centre South at Junee (NCCS). Voice logs confirm that he initiated this call at 1452. As he had not previously been made aware of the presence of the workers on the viaduct, the Network Controller contacted the local area ARTC Team Manager at Mittagong to follow up the circumstances which led to the incident.

Under instructions from the Team Manager, the Protection Officer travelled to ARTC's Provisioning Centre at Mittagong where he underwent mandatory drug and alcohol testing which returned negative results.

ARTC offered the Protection Officer counselling through their employee assistance program, the extent of which he recalled as being "*referred to the ARTC helpline in the following days*".

Factual Information

Location and Track Information

The Moss Vale to Unanderra Branch line is approximately 63 km in length and has one of the steepest grades in the NSW rail network. The last 20 km, which includes the Summit Tank to Dombarton section, has a near continuous descending gradient of 1 in 30 (see *Figure 1*). The speed limit on the track varies between Moss Vale and Unanderra but is signposted at 30km/h for freight services over the last 20 km of line.

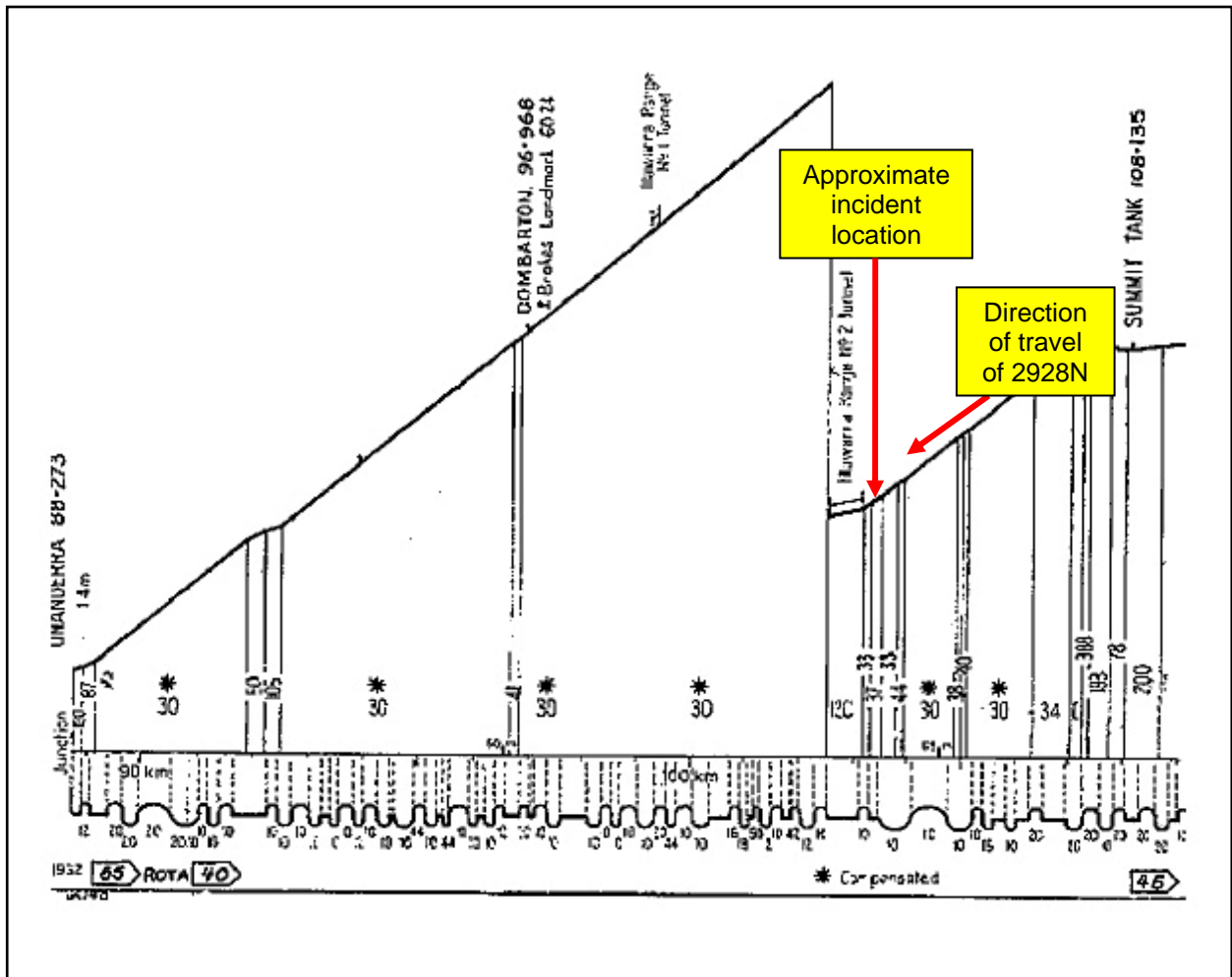


Figure 1: Illawarra Mountain Gradient Diagram

(Diagram courtesy of ARTC)

The line supports the movement of intermodal freight, bulk commodities such as coal and grain, and passenger services. Train movements on the single line between Moss Vale and Dombarton and the double line from Dombarton to kilometrage 91.080 are controlled from NCCS under Network Rule ANSY 500 *Rail Vehicle Detection System*. In the ‘Up’ direction², the last signal controlled from NCCS is signal WG 1052³ just prior to Dombarton. The incident occurred on a winding section of the line as the train approached the Country end of the viaduct heading towards Unanderra (see *Figure 2*).

² Trains travelling in the “Up” direction are those travelling towards Sydney.

³ ARTC requires a release from the RailCorp Signalling Complex at Wollongong to be able to operate WG 1052 signal. ARTC also provides a train control function for the Unanderra to Dombarton section and provides releases to the Signalling Complex at Wollongong to allow rail traffic to depart Unanderra.

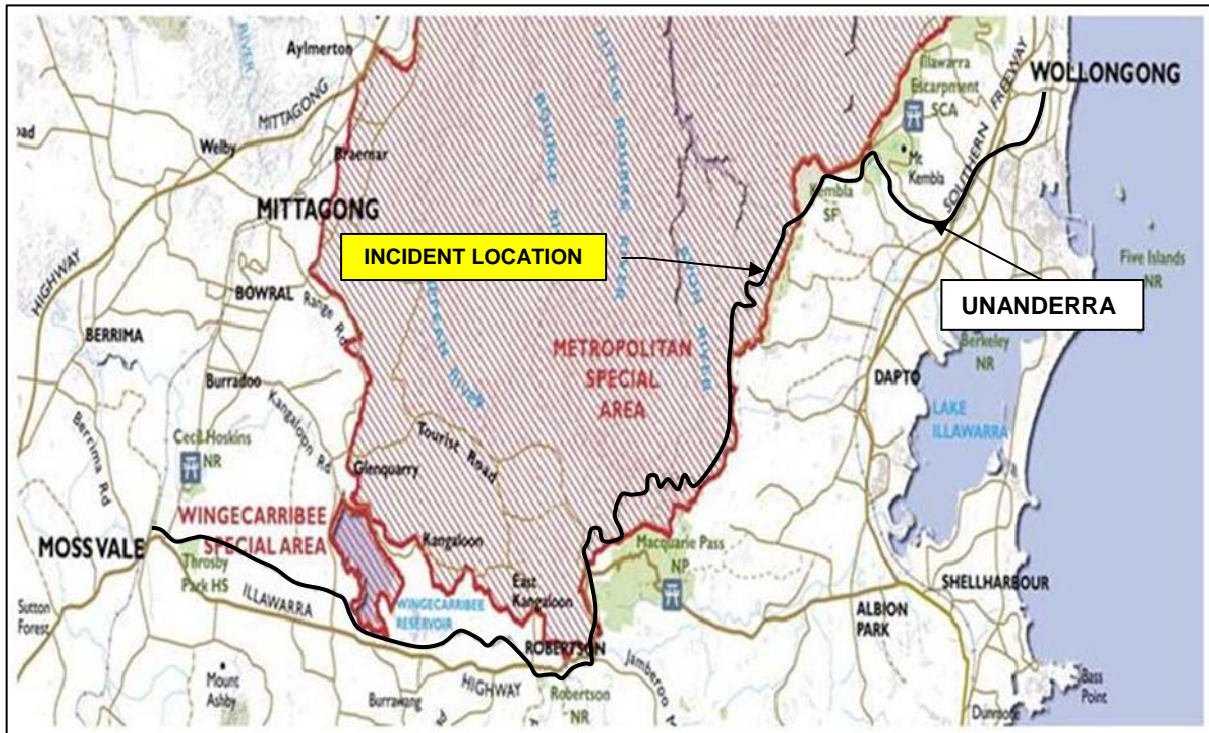


Figure 2: Incident location
 (Image courtesy of Sydney Catchment Authority)

The Train

2928N was operated by a two man crew (driver and second person) based out of PN’s Port Kembla Depot.

2928N consisted of two locomotives (NR38 and NR44), and at the time of the incident was hauling 30 loaded RHEH limestone hopper wagons from Medway Quarry (near Marulan) to Port Kembla. The train weighed 3,132 tonnes and measured approximately 479 m in length.

Weather

It was a fine, mild, cloudless afternoon and weather conditions played no part in the incident.

Topography

The viaduct crosses a large gully in the Avon River catchment area and is located in a hilly, winding and remote area of the Southern Highlands in territory declared as a

Metropolitan Special Area managed by the Sydney Catchment Authority (SCA)⁴ (see *Figure 2*). The viaduct, local topography and terrain can be seen in *Photographs 1 to 3*.

Access to the viaduct is via a fire trail approximately 15 km from the nearest access gate. Sighting distances for approaching rail traffic are restricted due mainly to vegetation and the curvature of the track. There is a walkway on the viaduct but it is in the danger zone and should not be occupied when rail traffic is passing as it does not constitute a safe place.

There is no mobile phone reception in the area and there is no safety signage in the vicinity of the viaduct.



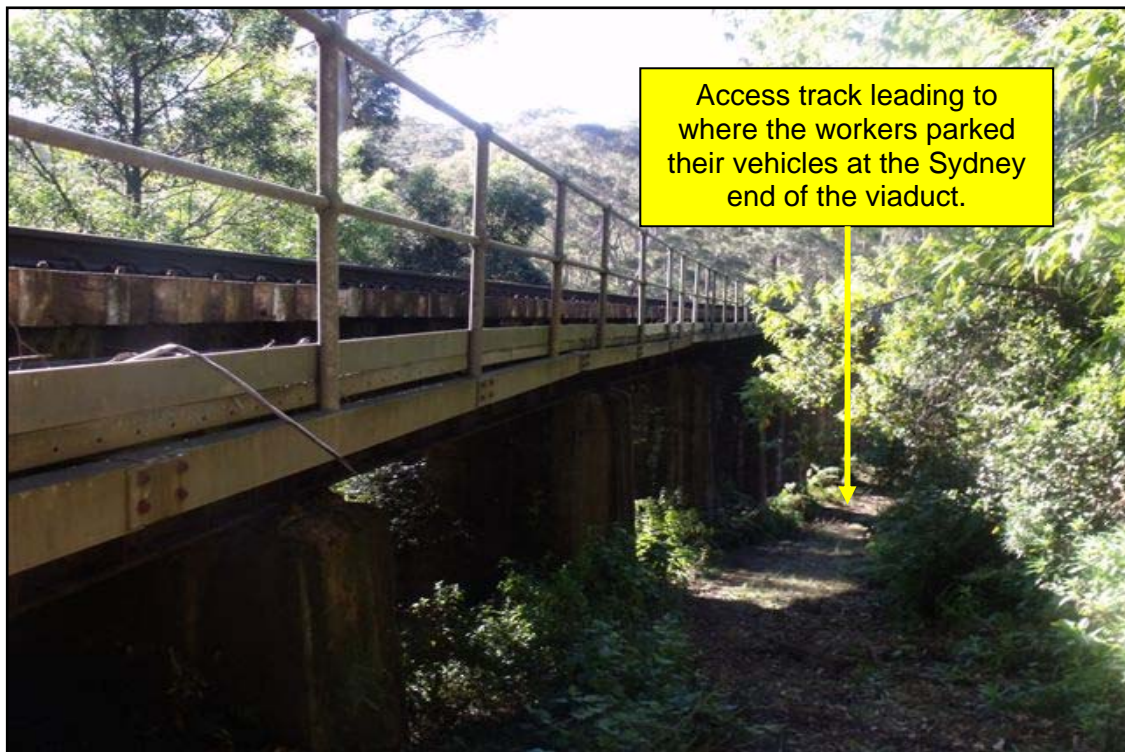
Photograph 1: View along the last curve on the approach to the viaduct (Country end)

(Photo courtesy of Australian Rail Track Corporation)

⁴ The SCA and the Office of Environment and Heritage jointly manage the Special Areas – refer to the SCA website at: <http://www.sca.nsw.gov.au/the-catchments/special-areas>.



Photograph 2: Incident location viewed from the Country end
(Photo courtesy of Australian Rail Track Corporation)



Photograph 3: Access road beside the viaduct
(Photo courtesy of Australian Rail Track Corporation)

Factors Affecting the Worksite Protection Arrangements

Network Rules, Procedures and Competencies

ARTC's Network Rule ANWT 300 *Planning Work in the Rail Corridor* requires work planned for the rail corridor to be assessed for safety and for its potential to intrude on the danger zone. Work in the danger zone is to be planned and carried out using one of five methods of worksite protection. All five methods of worksite protection require varying levels of authority and competencies to implement and, despite their technical differences, all are underpinned by the following fundamental safety requirements:

- a. work cannot occur unless the workers have access to a safe place within the rail corridor that can be easily reached in a timely manner;
- b. the level of safety must not be reduced to allow train and track vehicle movements, or because of a lack of trained workers;
- c. effective communications must be maintained with network control officers;
- d. worksites must have a protection officer whose other duties must not interfere with protection duties; and
- e. the protection officer must;
 - make a safety assessment before work commences,
 - ensure work is conducted safely, and
 - keep a record of the protection arrangements.

Network Rule ANWT 300 also states: “A *Protection Officer's primary duty is to keep the worksite and workers safe.*” Any person required to enter the ARTC rail corridor to establish a worksite must be trained and assessed as competent as a protection officer. Records show the Protection Officer was within his respective medical and competency assessment periods and held a Protection Officer Level 1 Certificate of Competency. As such, he was qualified and authorised to plan and assess the work, establish worksites and implement worksite protection arrangements under ARTC's Network Rules ANWT 308 *Controlled Signal Blocking* and ANWT 310 *Lookout Working*.

The Protection Officer had held the competency for three years and had attended refresher training (“Safeworking Recertification”) on 22 February 2012. However, at interview, his responses to questions about the role and functions of protection officers revealed a degree of uncertainty. Similarly, he displayed a lack of familiarity with some aspects of the relevant network rules and procedures, but volunteered the opinion that Controlled Signal Blocking would have been suitable to employ at the viaduct but Lookout Working would not.

While he understood the requirement for him to possess the protection officer competency as an adjunct to his primary role as a Structures Manager, the Protection Officer expressed the view that it was not his primary role and he was apprehensive about performing that function. He stated that he did not like the responsibility. He advised that his preferred method of dealing with Protection Officer situations was to have local track staff perform the function so that it only became necessary for him to undertake the task once every couple of months or so.

The Protection Officer expressed the view that an important step in improving the situation for people like him would be when the proposed National Rules come into effect. His understanding was that these would establish uniformity, consistency and reduce contradiction amongst similar rules. He believed that the new rules could have made it easier for him to implement worksite protection in this instance as well as in other State jurisdictions which were part of the territory covered by his role.

Task Circumstances

At interview, the Protection Officer indicated that he was familiar with the area, but on this occasion, while the inspection at the viaduct was to be carried out within the rail corridor, he had not anticipated the need for the group to enter the danger zone. Consequently, he did not communicate his presence to the Network Controller or undertake any planning work in accordance with ANWT 300. Significantly, he did not formally brief the contractors about safety matters before they started work, as is usually done in a pre-work brief. He knew the two contractors and knew that they were experienced in the rail environment. He had checked that one contractor had undergone ARTC’s mandatory Contractor Safety Induction. He assumed the other had completed some sort of induction, having seen him in worksites and heard others confirm it, but he did not conduct any type of check to verify it was the case.

Protection Officer's Work Regime

In his primary role as Structures Manager, the Protection Officer worked out of the Wagga Wagga Office and had a very large area of operational responsibility.⁵ His role involved considerable fieldwork and long distance driving, often to remote locations. He was not required to sign on at any particular location and did not have rostered meal or rest breaks. He considered his role was largely autonomous, only having contact with his direct supervisor (also based at the Wagga Wagga Office) up to twice a week, if the need arose.

The Protection Officer felt there were times where there was an unreasonable degree of pressure on him to manage contractors, which he found particularly difficult, while having to concurrently perform non-core functions such as those of protection officer and project manager. He felt this was the case on the day of the incident.

Regulatory Action

The NSW Independent Transport Safety Regulator (ITSR)⁶ provides safety information to the rail industry, some in the form of Transport Safety Alerts (TSAs).⁷ TSAs are issued to inform accredited rail transport operators, and the broader rail industry, of current and emerging safety issues. In 2007, following an incident where two rail infrastructure maintenance workers were struck and fatally injured at Singleton⁸, the Regulator issued Rail Industry Safety Notice (RISN) No.19 *Protection of railway employees carrying out work within the rail corridor*.⁹ The purpose was: "... to remind all railway operators of the need to properly manage risks to the safety of railway employees when walking or working in the railway Danger Zone".

⁵ The rail territory covered by the position included the Main South line from Macarthur on the outskirts of Sydney to Somerton in Victoria, the Unanderra to Moss Vale Branch line, the Benalla to Oaklands Branch line and the Metropolitan Freight Network in Sydney. The territory will also include the Southern Sydney Freight Line.

⁶ With effect 20 January 2013 ITSR became the NSW Branch of the Office of the National Rail Safety Regulator

⁷ From 1 July 2010, to reflect ITSR's expanded role in safety regulation, TSAs have been issued in place of RISNs.

⁸ OTSI Rail Safety Investigation Report, *Fatal Injuring of Two Rail Maintenance Workers, Singleton, NSW, 16 July 2007*, available at www.otsi.nsw.gov.au

⁹ RISN No.19 can be found on ITSR's website and is available at: <http://www.transportregulator.nsw.gov.au/rail/publications/tsas/RISN19.pdf/view>

After the RISN was issued, ITSR continued to identify an increasing trend in the number of worksite protection incidents occurring on the NSW rail network, culminating in fatalities during trackwork at Newbridge¹⁰ and Kogarah¹¹ in 2010. Based on their analysis, ITSR included safeworking arrangements for work on track and worksite protection practices in its Corporate Plan Priorities, and subsequently undertook a significantly increased level of inspections, investigations and compliance activities as part of improving safety outcomes.

In view of this incident, it may be timely for ITSR to re-issue the RISN with more 'lessons learned', contemporary data and information gained from its compliance activities.

Conclusions

The Protection Officer was required to combine the primary responsibilities of his Structures Manager position and those of protection officer while supervising the viaduct engineering inspection. As inspecting the structure from other than below the deck was not anticipated, no worksite protection planning was undertaken. When the circumstances changed and the group needed to move onto the viaduct and into the danger zone, the Protection Officer made no worksite protection arrangements. As it happened, optimal arrangements could not have been readily made as the location had no telephone coverage.

All three members of the group appear to have been focused on the inspection of the viaduct pier and oblivious to the potential danger of their situation. In the absence of any worksite protection arrangements, they were fortunate to have had sufficient time to evacuate the danger zone when they became aware of the approaching train.

SAFETY MESSAGE

This incident serves to demonstrate how a lapse in full compliance with prevailing network rules and procedures in relation to worksite planning and protection can change a situation in an instant, with potentially fatal consequences. It is imperative

¹⁰ Australian Transport Safety Bureau (ATSB) Transport Safety Report, *Collision between an XPT passenger train and a track-mounted excavator, near Newbridge, NSW, 5 May 2010* available at <http://www.atsb.gov.au>

¹¹ OTSI Rail Safety Investigation Report, *Track Worker Fatality, Kogarah, 13 April 2010*, available at www.otsi.nsw.gov.au

that protection officers fulfil their responsibilities diligently and comprehensively. Equally, it is a basic safety responsibility of rail operators to ensure that their protection officers' qualifications are current and that they are competent. They need to assure themselves of the competence and compliance of their employees through regular spot checking and auditing of worksite protection planning and implementation.

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 and scrutinising the analysis, findings and recommendations. They were invited to submit recommendations for amendments to the Draft Report that they believed would enhance the accuracy, logic, integrity and resilience of the Investigation Report. Copies of the Draft Report were provided to ARTC, Asciano (as owner of Pacific National), ITSR and the Protection Officer.

Submissions were received from ARTC, ITSR and the Protection Officer.

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.