Inquiry 12-101: Load shift on Train 926D struck stationary
Train 845, Main South line, Rolleston, 6 April 2012

The Transport Accident Investigation Commission is an independent Crown entity established to determine the circumstances and causes of accidents and incidents with a view to avoiding similar occurrences in the future. Accordingly it is inappropriate that reports should be used to assign fault or blame or determine liability, since neither the investigation nor the reporting process has been undertaken for that purpose.

The Commission may make recommendations to improve transport safety. The cost of implementing any recommendation must always be balanced against its benefits. Such analysis is a matter for the regulator and the industry.

Final Report

Rail inquiry 12-101
Load shift on Train 926D struck stationary
Train 845, Main South line, Rolleston
6 April 2012

Approved for Publication: March 2014

Transport Accident Investigation Commission

About the Transport Accident Investigation Commission

The Transport Accident Investigation Commission (Commission) is an independent Crown entity responsible for inquiring into maritime, aviation and rail accidents and incidents for New Zealand, and co-ordinating and co-operating with other accident investigation organisations overseas. The principal purpose of its inquiries is to determine the circumstances and causes of the occurrences with a view to avoiding similar occurrences in the future. Its purpose is not to ascribe blame to any person or agency or to pursue (or to assist an agency to pursue) criminal, civil or regulatory action against a person or agency. The Commission carries out its purpose by informing members of the transport sector, both domestically and internationally, of the lessons that can be learnt from transport accidents and incidents.

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Important notes

Nature of the final report

This final report has not been prepared for the purpose of supporting any criminal, civil or regulatory action against any person or agency. The Transport Accident Investigation Commission Act 1990 makes this final report inadmissible as evidence in any proceedings with the exception of a Coroner's inquest.

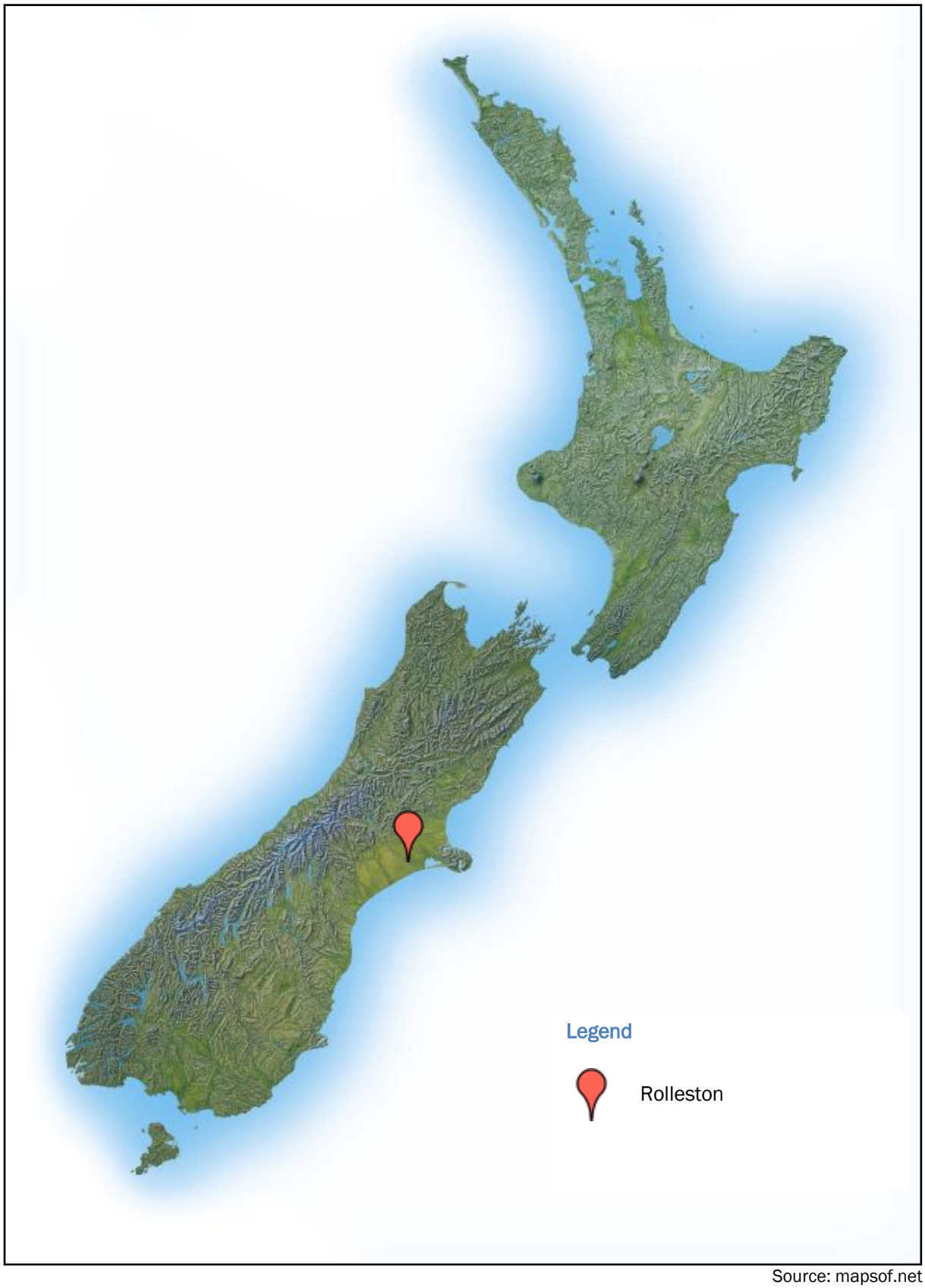
Ownership of report

Citations and referencing

Information derived from interviews during the Commission's inquiry into the occurrence is not cited in this final report. Documents that would normally be accessible to industry participants only and not discoverable under the Official Information Act 1980 have been referenced as footnotes only. Other documents referred to during the Commission's inquiry that are publicly available are cited.

Photographs, diagrams, pictures

Unless otherwise specified, photographs, diagrams and pictures included in this final report are provided by, and owned by, the Commission.



Source: mapsof.net

Location of accident

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Abbreviation

Commission	Transport Accident Investigation Commission

Glossary

bogie	a term used for a unit consisting of 2 wheel sets, 2 side frames, a bolster and the suspension and brake system. The bogie has a central pivot point that allows it to turn as the track curves and thus guide the rail vehicle into the curve. A wagon body is supported by 2 bogies
edge protector	material used to stop lashings fraying
flat-deck wagon	a freight-carrying wagon with no sides
lashing	a form of securing strap applied for the purpose of restraint. Examples are chains and webbing strops
loading gauge	the maximum dimensions to which a vehicle can be built or loaded without risk of striking a track-side structure
wagon body	a freight wagon with both bogies removed

Data summary

Vehicle particulars

Train type and numbers:	express freight Train 926D and express freight Train 845
Operator:	KiwiRail
Date and time	6 April 2012 at 0225[1]
Location	Rolleston
Persons involved	6
Injuries	nil
Damage	moderate

[1] Times in this report are New Zealand Standard Times (universal co-ordinated time + 12 hours) and are expressed in the 24-hour mode.

1. Executive summary

1.1. On 6 April 2012 the 9.5-tonne body of a damaged freight wagon (the load) was being carried on a purpose-built "special-movement wagon" (the wagon). The wagon was one of 60 on a northbound freight train travelling from Dunedin to Christchurch.

1.2. At some time before the train reached Ashburton the webbing strops used to lash the load to the wagon failed, allowing the load to move and overhang the side of the wagon by at least one metre. Over a distance of about 64 kilometres the overhanging load struck and damaged or destroyed 10 track-side signals and 2 barrier arm assemblies at a road level crossing.

1.3. At Rolleston another freight train was stationary on an adjacent track, waiting for the northbound train to pass. The overhanging load struck the locomotive of the stationary train. The driver of the stationary train alerted the other driver, who stopped his train. The stationary train received minor damage. No-one was injured in the accident.

1.4. The webbing strops failed because an insufficient number of them had been used to secure the load, and edge protectors, which were required to prevent the webbing strops fraying, had not been used. The load had not been secured in compliance with the KiwiRail Freight Handling Code (issue 3, effective from 7 September 2009).

1.5. The Transport Accident Investigation Commission (Commission) found that no-one involved with loading, shifting and securing the wagon body was sufficiently familiar with the KiwiRail Freight Handling Code to realise that the securing arrangement was not compliant with the Code. The Commission has made a recommendation to the Chief Executive of KiwiRail to address this safety issue.

1.6. The Commission also found that the wagon allocated to transport the load from Dunedin to Christchurch had not been furnished with the appropriate load-securing equipment. KiwiRail took the appropriate safety action to address this safety issue.

1.7. Key lessons learnt from this inquiry were:

- poorly secured loads on trains have the potential to cause significant damage to property and injury to persons, which is why the persons responsible for securing and checking the security of loads must be familiar with the requirements of the operator's Freight Handling Code

- the proper freight-securing equipment must be easily available to staff to ensure they can correctly apply the standards of the Freight Handling Code.

2. Conduct of the inquiry

2.1. On Friday 6 April 2012, the NZ Transport Agency notified the Commission of the incident. The Commission opened an inquiry under section 13(1) of the Transport Accident Investigation Commission Act 1990 to determine the circumstances and causes of the incident. An investigator in charge was appointed that same day.

2.2. The investigator in charge travelled to Rolleston on the day of the incident to examine the wagon conveying the load and recover webbing strops used to secure the load. He also travelled 70 kilometres south of Rolleston to record details of 14 signal installations damaged by the load shift en route.

2.3. The investigator in charge subsequently had discussions with the following KiwiRail staff:

- the container terminal site manager, Dunedin
- the operations manager, Dunedin
- the container terminal operator
- the South Island regional manager mechanical
- the line-haul operations manager, Christchurch.

2.4. On 16 December 2013 the Commission approved the draft final report for distribution to interested persons for comment.

2.5. The Commission sent the draft final report to 16 interested persons. Written submissions were received from 2 interested persons. Those submissions were considered and changes made to the report.

2.6. On 17 March 2014 the Commission approved the final report for publication.

3. Factual information

3.1. Narrative

3.1.1. On Monday 16 January 2012, a derailment occurred on the Main South line about 30 kilometres north of Dunedin. The body of a derailed freight wagon (the load) was secured on a standard flat-deck wagon and conveyed from the derailment site to the container terminal at Dunedin. The load was placed on 3 timber sleepers laid across the flat-deck wagon and secured with 4 webbing strops.

3.1.2. The wagon body was eventually destined for Christchurch, but could only make the 366-kilometre journey on a special-movement wagon designed for that purpose. The flat-deck wagon was stored at the Dunedin container terminal for several weeks awaiting the availability of a purpose-built, special-movement wagon[2]. Eventually special-movement wagon MDD43 (the wagon) became available in March 2012. A container terminal operator used a fork hoist to transfer the load to the wagon. He used the same 3 wooden sleepers from the flat-deck wagon and the same 4 webbing strops to secure the load. The KiwiRail Freight Handling Code required that edge protectors be placed between the web strops and the sharp corners of the load. Edge protectors had not been used for the journey from the derailment site to Dunedin. The Dunedin container terminal operator did not use any when securing the load on the wagon.

3.1.3. On 3 April 2012 the wagon was pulled from the Dunedin container terminal and taken to the freight yard. The next day the wagon was placed on a freight train for the journey to Christchurch. A rail operator carried out the mandatory pre-departure train inspection and the brake test. He certified that all loads were secure and that the wagons on the train were in a safe condition to run. The train departed from Dunedin at 1830.

3.1.4. The train stopped en route at Oamaru, Pukeuri and Timaru to exchange wagons. On arrival at Timaru a rail operator saw that the load had shifted on the wagon and that some of the webbing strops had failed during the 206-kilometre journey from Dunedin. The wagon was cut from the train and placed in the Timaru container terminal for the load to be adjusted and re-secured.

3.1.5. A container terminal operator at Timaru used a fork hoist to move the overhanging load back to the middle of the wagon. He replaced 2 webbing strops that had frayed, re-tightened 2 others and added a fifth one.

3.1.6. On 5 April 2012 another freight train started the same journey from Dunedin to Christchurch. It stopped at Timaru just after midnight on 6 April 2012. Nine wagons were detached from the train and 17, including the wagon with the adjusted load, were attached. A rail operator made a full inspection of those wagons added and conducted a brake test once the train was complete. The train departed Timaru at 0030 with the wagon with the adjusted load 20 wagons back from the locomotive.

3.1.7. At 0125 the train passed through Hinds, 57 kilometres north of Timaru, without incident. At some point the load on the wagon shifted again. It struck and damaged a series of track-side signals and level-crossing apparatus. The first was at Ashburton some 74 kilometres north of Timaru. A signal mast head was broken off, and the ladder was bent (see Figure 1). The signal was on the east side of the line 2.75 metres from the centre of the track.

[2] There were only 3 special-movement wagons in the KiwiRail fleet.

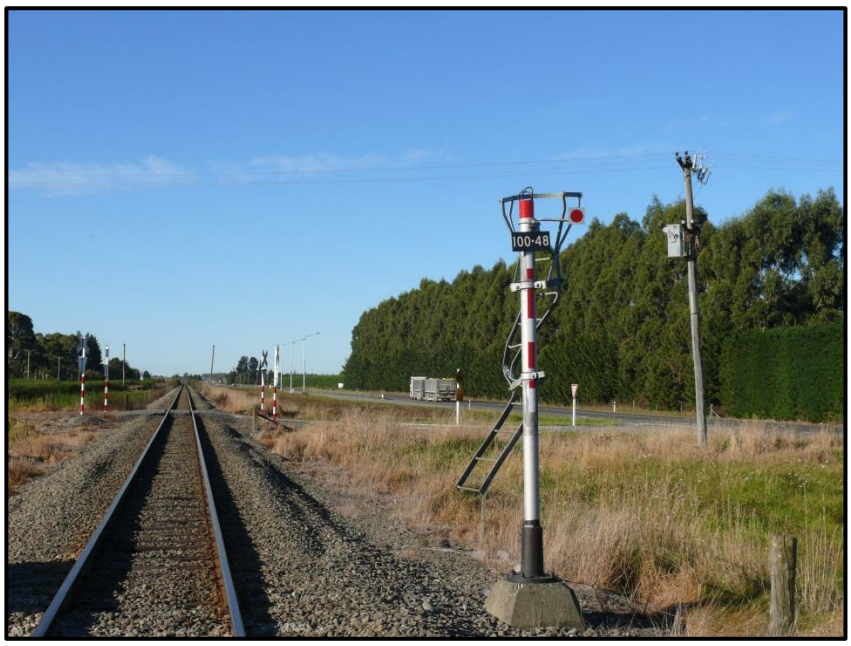

Figure 1
Signal south of Ashburton (photograph from KiwiRail)

3.1.8. As the train continued towards Christchurch, the displaced load struck and destroyed the south-eastern barrier arm mechanism protecting the Moore Street level crossing at Ashburton (95.45 kilometres Main South line). The complete barrier mast separated at the concrete block (see Figure 2). Damage to the north-western barrier mechanism was less severe. The counterweight became separated and the securing bolt bent.

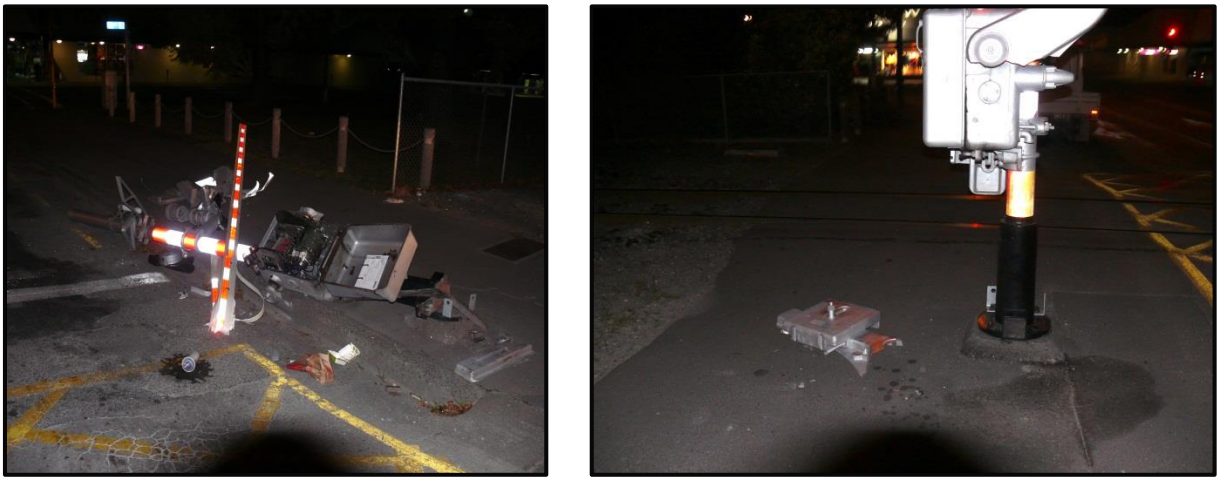

Figure 2
Damage to Moore Street level crossing barrier arms (photographs from KiwiRail)

3.1.9. The displaced load struck and damaged 5 other signals on the east side of the main line within Ashburton station limits.

3.1.10. At about 0153 the displaced load struck 3 signals near Chertsey level crossing, shearing one off at its base (see Figure 3).

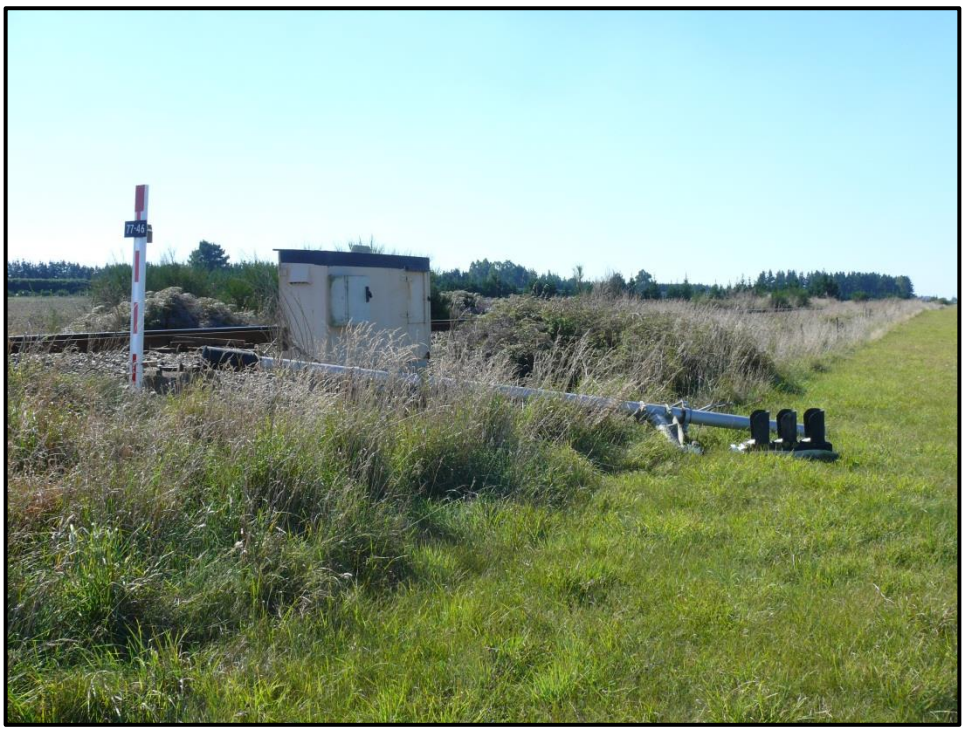

Figure 3
Signal approaching Chertsey (photograph from KiwiRail)

3.1.11. Over the next 41 kilometres the train passed 7 signals on the east side of the main line without incident.

3.1.12. When the train entered Rolleston Station limits, some 137 kilometres from Timaru, the displaced load struck the signal on the east side of the main line, shearing the signal mast at the base casting (see Figure 4).

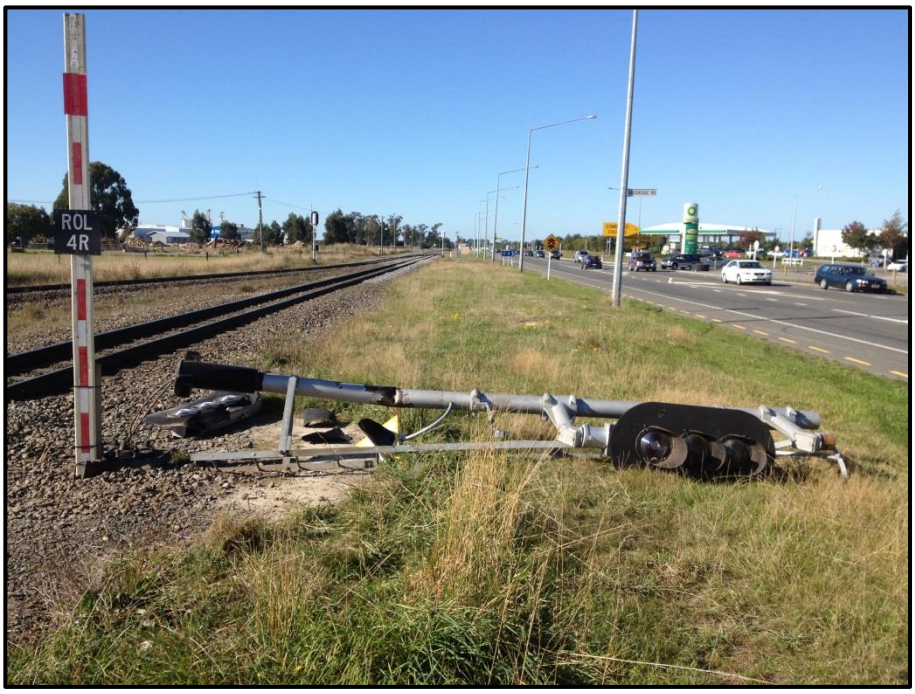

Figure 4
Signal approaching Rolleston

3.1.13. At that time, a West Coast-bound train was stationary on the West Main line at Rolleston, waiting to enter the Midland line. KiwiRail procedures required drivers of stationary trains to conduct "roll-by inspections"[3] of other trains when they crossed[4]. Once the locomotive of the northbound train had passed, the driver of Train 845 switched his headlight to full in order to carry out the roll-by inspection from his locomotive cab. About the leading third of the train had gone past when out of the darkness he saw the load protruding over his track. The driver was just ducking down behind his driver's console when the displaced load struck his train. He immediately made a radio broadcast saying, "926, stop, stop, stop you have hit me" (see Figure 5).

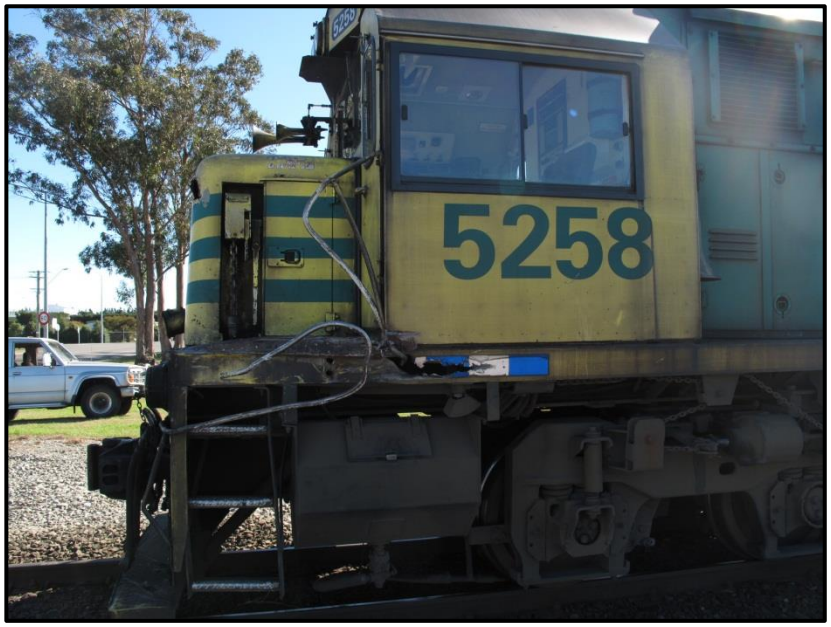

Figure 5
Damage to the locomotive on Train 845

3.1.14. The driver of the northbound train applied the brakes immediately. The train controller in Wellington's national train control centre also heard the radio broadcast and responded by changing the indication of the next signal to red (Stop). The driver was able to stop his train before that signal (within 1300 metres).

3.1.15. When the driver went back to check his train he found the load overhanging the east side of the wagon (see Figure 6). All 5 webbing strops used to secure the load had failed.

[3] Check the other trains for any irregularity.
[4] The Main South line is single track. Trains use crossing loops or other lines within station limits to cross trains travelling in the opposite direction.

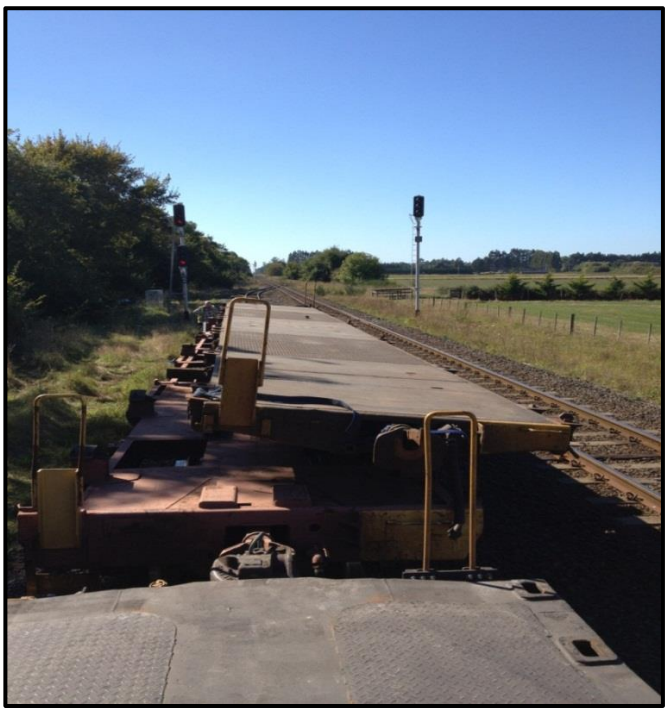

Figure 6
The load overhanging the wagon at Rolleston

4. Analysis

4.1. Introduction

4.1.1. Load security on wagons is critically important. The safety of the rail network relies on trains being within the "loading gauge". The loading gauge defines the maximum dimensions to which a rail vehicle can be built or loaded without risk of striking a structure beside the track, including tunnel walls. The risk is heightened when there is an adjacent track, such as in double-line territory, or in this case where there was a crossing loop to enable opposing trains to pass each other.

4.1.2. This accident was a good example of what can happen if a load shifts outside the loading gauge. Several track-side structures were substantially damaged and eventually the displaced load struck an opposing train waiting in a crossing loop.

4.1.3. The following analysis discusses why the load shifted. It also considers 2 safety issues:

- KiwiRail staff members who were responsible for loading and securing wagons and inspecting special loads were not sufficiently trained in and knowledgeable about the KiwiRail Freight Handling Code.

- the special-movement wagon was not well equipped to secure properly the special load it was designed to convey.

4.2. Why the load shifted

4.2.1. The weight of the load was calculated to be 9.5 tonnes. When conveying unrestrained loads, the Freight Handling Code required the combined rated strength of the lashings to be at least twice the weight of the load[5]. The standard railway lashing chain (bond chain) used by KiwiRail had a rated strength of 10 tonnes. If these had been used, a minimum of 2 chains would have been required to lash the wagon body to the special-movement wagon.

4.2.2. When wagon bodies were transported on wagons, the "load" was regarded by KiwiRail as a steel structure. There were no specific rules for transporting these steel structures, but there was sufficient guidance on the securing of steel products that could and should have been applied to this load[6].

4.2.3. KiwiRail's standard loading instructions were to use bond chains for securing steel products such as rolled products, hollow sections, steel coils, wrapped steel sheets, light and heavy plate, colour steel and steel slabs. Bond chains fitted in the appropriate way would have been a better choice for securing the load.

4.2.4. The Freight Handling Code did allow webbing strops to be used to secure loads, but they had to be used together with edge protectors positioned between the webbing strops and where they passed around sharp parts of the steel structure to prevent the strops fraying. Fraying significantly reduces the strength of webbing strops.

4.2.5. The webbing strops used to secure the load to the wagon had been manufactured in accordance with standard AS/NZS 4380:2001. They had a rated lashing capacity of 2.5 tonnes. Therefore, a minimum of 8 webbing strops with edge protectors would have been required to lash the wagon body in order to meet the Code requirements.

4.2.6. Only 4 webbing strops were used when the wagon body was first lashed to a standard flat-deck wagon for the trip from the derailment site to Dunedin. None of those was fitted with edge protectors. When the load was transferred to the special-movement wagon at Dunedin, the container terminal operator simply transferred the lashing arrangement to the wagon.

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[5] KiwiRail Freight Handling Code, Section 5.7.

[6] KiwiRail Freight Handling Code, Section 5 Load Security and Safety, Section 13 Metallic Products, and Section 13A Steel Products.

4.2.7. Unsurprisingly, the webbing strops had begun to fray and the load had shifted by the time the train arrived in Timaru. The container terminal operator there had the initiative to replace 2 frayed webbing strops and add one to make 5, but this was still 3 short of what was required, and still edge protectors were not put in place to prevent them fraying.

4.2.8. It was not possible to determine when and in what order the webbing strops failed, but from the time the first failed the others would have failed in rapid succession as they progressively had to cope with more and more of the load.

4.2.9. In those final kilometres before striking the stationary train at Rolleston, the load appeared to have been almost, if not totally, unrestrained. First it struck several structures on the east side of the train. Then it struck the stationary train standing on the west side of the train, and after striking the stationary train it was found overhanging on the east side again, with no lashings left securing it.

Findings

1. The load shifted outside the standard loading gauge, and struck several track-side structures and another train, because it had not been secured in accordance with the KiwiRail Freight Handling Code

2. Only half the required number of webbing strops had been used to secure the load and none had edge protectors fitted to prevent them fraying

3. The use of chains would have been a more appropriate method of securing the load to the wagon

4.3. Training

Safety issue – No-one involved with loading, shifting and securing the wagon body was sufficiently familiar with the KiwiRail Freight Handling Code to realise that the securing arrangement was not compliant with the Code.

4.3.1. The Freight Handling Code was an integral component of KiwiRail's safety management system. It had been introduced in 1997. The Code was comprehensive and presented in a pictorial format so that it could be readily understood by those who needed to learn and adhere to it. It was accessible from KiwiRail's website.

4.3.2. However, such a code is only useful if staff members who are required to follow it are trained accordingly and have ready access to it. In this case the persons involved in clearing the derailment site were not trained in the Freight Handling Code. Consequently the load was not compliant with the Code when it began its journey.

4.3.3. The container terminal operator at Dunedin had not been trained or assessed against the Code either. His job description stated in part:

> As a Container Terminal Operator your primary task is the loading and unloading of trucks and rail wagons. You will carry out your role according to KiwiRail's health and safety and rail operating procedures as specified in the rail operating code.

The bulk of a container terminal operator's work was loading and unloading containers between trucks and trains. However, they were occasionally required to handle other types of freight as well, so they should have been trained in the Freight Handling Code before being allowed to undertake those tasks. So too should their knowledge and currency with the Code have been routinely assessed. However, in contrast to its requirements for other yard-operating staff, KiwiRail had no requirement to conduct regular formal safety observations of container terminal operators. This knowledge gap among staff authorised to conduct these important tasks is a safety issue that will need to be addressed by KiwiRail.

4.3.4. In the absence of any information to the contrary, the Dunedin container terminal operator made an assumption that the method used to lash the load when it entered the yard should be sufficient for when it left the yard. Consequently the wagon resumed its journey still as a non-compliant load.

4.3.5. The next point in the journey when the error should have been picked up was during the rail operator's pre-departure train inspection at the Dunedin freight terminal. Rail operators were trained in and supposed to be familiar with the KiwiRail Freight Handling Code.

4.3.6. KiwiRail's Rail Operating Code[7] set out the duties and responsibilities of personnel carrying out train inspections. It stated in part:

> 6.1 DUTIES AND RESPONSIBILITIES
>
> Where there are no explicit instructions Rail Personnel must exercise their own judgement, subject to the overriding consideration that no train may be dispatched if any vehicle in it is not in a safe condition to run.
>
> The thorough **walk around** of trains is essential for service quality and safe operations.

4.3.7. During the walk-around on both sides of a train the rail operator performing the train inspection was required to carry out a brake test, and check the security and condition of each wagon, which included checking:

- the condition of brake blocks
- for leaking hoses
- that all wagons were coupled correctly
- that all handbrakes had been released
- the condition of wheels and springs
- that there was no hanging brake equipment.

4.3.8. They were also supposed to carry out a load security check to ensure that:

- the loads were secure as far as visible
- bond chains were secured and tight
- curtains/doors were closed
- the twist-locks were engaged and locked
- no loose [items] such as tyres and timber were present.

4.3.9. The pre-departure train inspection was the final opportunity to identify "out-of-Code" loads. In this case neither the rail operator at Dunedin nor the one at Timaru identified that the load had not been secured in compliance with the Code. The majority of rail freight was container traffic and regular bulk products, with less special general cargo freight being conveyed. For this reason it is possible that pre-departure checks tended to focus on train running gear and associated brake equipment, all of which were below the level of the wagon decks, at the expense of conducting proper assessments of special loads such as the wagon body. At a cursory glance the wagon body would have looked reasonably well secured – not overhanging and all 4 lashings tight. It would have taken some knowledge of the Freight Handling Code, or reference to it, to have understood that the load was not properly secured.

4.3.10. The same safety issue arose in Timaru. The container terminal operator at the depot had not been trained in the Freight Handling Code. Like the Dunedin container terminal operator, he lashed the load in a similar way, although in his case it should have been more obvious that

[7] KiwiRail Rail Operating Code, Section 5.3, Clause 6.1.

the lashing arrangement was not suitable because he found 2 webbing strops frayed, and replaced them.

4.3.11. The issue was not new to KiwiRail. An internal investigation had been carried out in August 2008, following 3 separate consignments of steel beams conveyed on flat-deck wagons shifting while in transit. The findings from the investigation had identified the training in, knowledge of and application of the Freight Handling Code as contributory factors.

4.3.12. KiwiRail had a responsibility to ensure that staff was trained and competent in all tasks being undertaken. It had to ensure that the loading and stowage of goods on railway wagons were carried out by people with the appropriate training and certification.

4.4. The MDD class special-movement wagon

Safety issue – The MDD class special-movement wagon allocated to transport the load from Dunedin to Christchurch had not been furnished with the appropriate load-securing equipment.

4.4.1. The special-movement wagon had been converted and allocated to KiwiRail's mechanical group for non-revenue, special-movement use. The wagon was more than 4 metres longer than the standard UK-class flat-deck wagon and ran on smaller-diameter wheels in order to lower the deck height and make it capable of carrying high loads. The wagons had initially been used to transport passenger carriage bodies from Wellington to Dunedin.

4.4.2. Wagon MDD43 had 3 chain boxes and winches on each side. However, when the wagon was placed in the container terminal at Dunedin there were no bond chains in those boxes. Bond chains and edge protectors were not kept at the container terminal.

4.4.3. A supply of the right equipment for a task is important. If it is not readily available, employees are less likely to go out of their way to find and use it.

4.4.4. On 12 July 2013 KiwiRail advised that since this incident the fleet of MDD class wagons had increased from 3 to 4 and another conversion was in progress. All of the special-movement wagons were fully decked, had 8 stanchion pockets on each side and were fitted with 6 chain box assemblies, 6 corresponding chain winch arrangements and lengths of 10-millimetre Grade 80 chain. This addressed this safety issue, so the Commission has not made any recommendation.

Findings

4. None of KiwiRail's staff involved with loading and securing the load was sufficiently familiar with the KiwiRail Freight Handling Code to realise that the securing arrangement was not compliant with the Code

5. The MDD class special-movement wagon allocated to transport the load from Dunedin to Christchurch had not been furnished with the appropriate load-securing equipment. Consequently, if someone had wanted to secure the load in compliance with the Freight Handling Code, they would not have been able to do so

5. Findings

5.1. The load shifted outside the standard loading gauge, and struck several track-side structures and another train, because it had not been secured in accordance with the KiwiRail Freight Handling Code.

5.2. Only half the required number of webbing strops had been used to secure the load and none had edge protectors fitted to prevent them fraying.

5.3. The use of chains would have been a more appropriate method of securing the load to the wagon.

5.4. None of KiwiRail's staff involved with loading and securing the load was sufficiently familiar with the KiwiRail Freight Handling Code to realise that the securing arrangement was not compliant with the Code.

5.5. The MDD class special-movement wagon allocated to transport the load from Dunedin to Christchurch had not been furnished with the appropriate load-securing equipment. Consequently, if someone had wanted to secure the load in compliance with the Freight Handling Code, they would not have been able to do so.

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6. Safety actions

6.1. The Commission classifies safety actions by 2 types:

(a) safety actions taken by the regulator or an operator to address safety issues identified by the Commission during an inquiry that would otherwise result in the Commission issuing a recommendation

(b) safety actions taken by the regulator or an operator to address other safety issues that would not normally result in the Commission issuing a recommendation.

Safety actions addressing safety issues identified during an inquiry

6.2. On 13 December 2013 KiwiRail advised that all but one of the MDD class wagons have been fitted with chains and additional tie down points.

7. Recommendations

7.1. General

7.1.1. The Commission may issue, or give notice of, recommendations to any person or organisation that it considers the most appropriate to address the identified safety issues, depending on whether these safety issues are applicable to a single operator only or to the wider transport sector.

7.1.2. In this case the Commission makes one recommendation to the Chief Executive of KiwiRail as it is the appropriate organisation to address the safety issues.

7.1.3. The second recommendation is made to the Chief Executive of the NZ Transport Agency. The NZ Transport Agency has various powers under the Railways Act 2005 to monitor and ensure rail participants' performance and compliance.

7.1.4. In the interests of transport safety it is important that these recommendations are implemented without delay to help prevent similar accidents or incidents occurring in the future.

7.2. Recommendation 1: Maintaining staff competency

7.2.1. None of KiwiRail's staff involved with loading and securing the wagon body was sufficiently familiar with the KiwiRail Freight Handling Code to realise that the securing arrangement was not compliant with the Code.

KiwiRail had a responsibility to ensure that staff was trained and competent in all tasks being undertaken. It had to ensure that the loading and stowage of goods on railway wagons were carried out by people with the appropriate training and certification.

*The Commission recommends that the **Chief Executive of KiwiRail** take steps to ensure that appropriate training is given to all staff involved in load security and that staff responsible for checking load security at the various stages of a train journey are discharging their duties in a manner consistent with the KiwiRail Freight Handling Code. (008/14)*

On 1 April 2014, the Chief Executive of KiwiRail replied in part:

> KiwiRail intentds to take the following actions:
>
> 1. KR Operational and Training Manager have been tasked to carry out a Training Needs Analysis (TNA), develop and implement a KR Training package to designated KR Staff (Freight Terminals) and Third Parties (Freight Staff).
>
>   Individual type Training Packages are to ensure that all staff involved in loading, load security certifying load, accessing presented load, responsible for checking load security at the various stages of a train journey are discharging their duties in accordance with the Freight Handling Code.
>
>   - Training Needs and Analysis (TNA) is envisioned for a completion date 31 May 2014.
>   - Training Development is envisioned for a completion date 31 Jul 2014
>   - Training Delivery programme is envisioned for completion date 30 Sep 2014
>
> 2. KiwiRail will discuss with Third Parties on how best to scope and undertake the training: however whilst in infancy development and the catch-all and confidence assurance to KiwiRail will be 1 above.
>
> 3. For Audit purposes the "Training Programme" is to electronically record the individual's course completion, competency/authorisation and ongoing refresher training requirements. Third Party Facilities to self-manage staff

competencies post course completion notification (KiwiRail/Internal) Refer 5 below.

4. KiwiRail Freight Operations will develop an en-route monitoring programme to ensure cargo remains appropriately secured and fit to travel. Special Project to be completed by 30 Sep 2014. Refer 5 below.

5. KiwiRail Audit will develop and audit and revalidation programme to support 1 and 2 above.

7.3. Recommendation 2: NZ Transport Agency

7.3.1. No-one involved with loading, shifting and securing the wagon body was sufficiently familiar with the KiwiRail Freight Handling Code to realise that the securing arrangement was not compliant with the Code.

KiwiRail had a responsibility to ensure that staff was trained and competent in all tasks being undertaken. It had to ensure that the loading and stowage of goods on railway wagons were carried out by people with the appropriate training and certification.

The Commission has recommended that the Chief Executive of KiwiRail take steps to ensure that appropriate training is given to all staff involved in load security and that staff responsible for checking load security at the various stages of a train journey are discharging their duties in a manner consistent with the KiwiRail Freight Handling Code.

7.3.2. It is important that KiwiRail address the above recommendation, which addresses the safety issues examined in the report. The NZ Transport Agency has various powers under the Railways Act 2005 to monitor and ensure KiwiRail's performance and compliance.

*The Commission recommends that the **Chief Executive of the NZ Transport Agency** ensure that KiwiRail addresses the above recommendation. (009/14)*

On 21 March 2014, NZ Transport Agency replied:

> Recommendation 008/14 that the Commission have directed to the Chief Executive of KiwiRail is noted.
>
> Recommendation 009/14 made to the Chief Executive of the the NZ Transport Agency is accepted.
>
> Discussions on these recommendations will be initiated on the publication of the final report. These discussions will include a projected timeframe for implementation. This will be advised to TAIC in due course.

8. Key lessons

8.1. Poorly secured loads on trains have the potential to cause significant damage and injury to persons, which is why the persons responsible for securing and checking the security of loads must be familiar with the requirements of the operator's Freight Handling Code.

8.2. The proper freight-securing equipment must be easily available to staff to ensure they can correctly apply the standards of the Freight Handling Code.

Recent railway occurrence reports published by the Transport Accident Investigation Commission (most recent at top of list)

11-105	Freight Train 228 wrong-routed, into closed section of track Wiri Junction, South Auckland, 12 November 2011
RO-2013-108	Near collision between 2 metro passenger trains, Wellington, 9 September 2013
11-106	Hi-rail vehicle nearly struck by passenger train, Crown Road level crossing near Paerata, North Island Main Trunk, 28 November 2011
11-102	Track occupation irregularity, leading to near head-on collision, Staircase-Craigieburn, 13 April 2011
RO-2013-104	Urgent Recommendations: Derailment of metro passenger Train 8219, Wellington, 20 May 2013
11-103	Track workers nearly struck by passenger train, near Paekakariki, North Island Main Trunk, 25 August 2011
10-101	wrong route setting, high-speed transit through turnout, near miss and SPAD (signal passed at danger), Tamaki, 13 August 2010
11-104	Freight Train 261 collision with bus, Beach Road level crossing, Paekakariki, 31 October 2011
10-102	collision between 2 metro passenger trains, after one struck a landslide and derailed between Plimmerton and Pukerua Bay, North Island Main Trunk, 30 September 2010
07-102	(incorporating inquiry 07-111) freight train mainline derailments, various locations on the national network, from 6 March 2007 to 1 October 2009
11-101	Wrong line running irregularity, leading to a potential head-on collision, Papakura - Wiri, 14 January 2011
08-102	Metro passenger train derailment, Sylvia Park, 14 April 2008 (incorporating inquiries 08-104 and 08-107) Diesel motor fires on board metro passenger trains, 3 June 2008 and 25 July 2008
08-111	Express freight Train 524, derailment, near Puketutu, North Island Main Trunk, 3 October 2008
08-112	Safe working irregularity resulting in a collision and derailment at Cass Station on the Midland line, 8 November 2008
09-102	Passenger fatality after falling between platform and passenger Train 8125, Newmarket West station, 1 July 2009

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