This is a collation of some of the world’s railway formal inquiry reports. It includes a brief incident synopsis, along with the main causes and recommendations from each investigation. Readers may find some of the actions and recommendations useful to their own operations.

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Key issues in this edition:

- Overhead line equipment maintenance
- Possession planning
- Safety critical communications
- Drug misuse
- Overhead line insulator manufacture and maintenance
- Windscreen resistance

Ormoy, France
At 07:19 on 5 January 2012, the pantograph assembly fell from the roof of a passenger train, breaking two windows on its way to the ground, near Littleport in Cambridgeshire.

The train was travelling at around 80 mph when the accident occurred. The driver brought it to a controlled stop.

One passenger received treatment for minor cuts at site; two others suffered minor shock, but did not require medical treatment. There was extensive damage to the overhead line (OHL) equipment and minor damage to the train body.

RAIB’s investigation found that the pantograph head had lost contact with, and risen above, the OHL, resulting in the pantograph arm hitting a cantilever support structure. This impact broke the electrical insulators on which the pantograph assembly was mounted, allowing it to fall from the roof.

The pantograph head lost contact because the OHL was deflected from its intended position due to a combination of long-term movements of the support mast foundations and the force of the wind at the time of the accident.

RAIB concluded that maintenance of the OHL had not been carried out in accordance with Network Rail standards, meaning that it had not been adjusted to allow for long-term foundation movements.

RAIB listed the following causal factors:

- Movement of the mast foundations rotated the OHL away from the centre line of the track;
- Routine inspection and maintenance was deferred beyond specified limits without implementing mitigation against risks associated with support structure movement;
- The slipping structure monitoring process did not include an assessment of wire position relative to its design position;
- The pantograph became dewired, allowing the pantograph head to move above the contact wire, and the pantograph arm to hit a cantilever structure;
- The pantograph insulators broke so that the pantograph became detached from the train;
- External forces from the wind, train movement and contact with the OHL pushed the pantograph assembly off the roof of the train; and
- The window was forced into the train by impacts from the pantograph assembly.

It also listed the following underlying factor:

- The overhead line alignment specifications and maintenance limits in Network Rail standards were inconsistent and not clearly understood by maintenance staff.

**Recommendations**
Network Rail should review the manner in which Temporary Non-Compliance certificates (TNCs) are being used in relation to overhead line equipment, and take corrective action if they are being issued without risks being adequately assessed and mitigated.

Network Rail should review the standards and procedures for the management of overhead line alignment, in order to provide maintenance staff with a simple means of relating measurements that are recorded at site to required alignment criteria. The review should include, at least, consideration of:

- Providing maintenance staff with information allowing them to determine the acceptable range of contact wire positions at every support; and
- Removing the need for maintenance staff to make their own assessment of pantograph movements when determining if adjustments to the overhead line are required.

**Published 23 May**

**New Zealand: Near miss between passenger train and track workers near Paekakariki, North Island, 25 August 2011**

For the full report, click [here](#).

At 10:13 (local time) on 25 August 2011, a Waikanae–Wellington service was involved in a near miss with two track workers repairing the line in a possession between Paekakariki and North Junction.

The ‘PICOP’ had given permission for the passenger train to enter the possession after he had given the driver assurance that the track workers were clear of the track. However, the PICOP could not see the workers from where he was standing and had given the driver assurance without first checking that his colleagues were clear of the permanent way.

As the train rounded the bend at around 60 km/h, the driver saw two members of the team about 90 metres ahead. He sounded the horn and applied the brakes. The track workers managed to jump clear just before the train passed. Neither were injured.

The Transport Accident Investigation Committee (TAIC) found that the planning of the work had not been completed in accordance with KiwiRail procedures. A communication plan had been submitted by the acting track foreman and, even though an informal communication plan had been developed the day before the work began, that plan was altered to accommodate a change in circumstances. The amended plan was inherently flawed and it was a communication breakdown that led to the near miss.

The TAIC also found that the work group collectively had insufficient experience in planning for and coordinating the work that day and that KiwiRail’s system for signing off and the on-going monitoring of infrastructure staff competency records, were incomplete and could not ensure that the staff involved were qualified to undertake their assigned duties.

Furthermore, the PICOP had been a regular user of cannabis, and post-incident drug and alcohol testing carried out by KiwiRail revealed tetrahydrocannabinol metabolites (THC acid) in his urine.

**Recommendations**

- The Chief Executive of the New Zealand Transport Agency should take the necessary steps to ensure that KiwiRail’s safety system maintains accurate and up-to-date training and revalidation
records of all staff competencies. The action taken should also check that KiwiRail’s safety system ensures that all staff is qualified and competent for their roles.

On 24 April 2013, Manager Rail Systems, New Zealand Transport Agency, replied:

This recommendation is accepted. Discussion on it will be initiated on the publication of the final report. These discussions will include, where appropriate, a projected timeframe for implementation. This will be advised to TAIC in due course.

- The Chief Executive of the New Zealand Transport Agency should work with the National Rail System Standard Executive to develop a National Rail System Standard that requires all rail participants to have drug and alcohol policies that: have zero tolerance of performance-impairing substances for workers engaged in safety-critical tasks; require post-incident and accident and random testing for drugs and alcohol; and require a system for rail workers to report discreetly co-workers suspected of using or being under the influence of drugs or alcohol in the workplace.

On 24 April 2013, Manager Rail Systems, New Zealand Transport Agency, replied:

This recommendation is accepted. Discussion on it will be initiated on the publication of the final report. These discussions will include, where appropriate a projected timeframe for implementation. This will be advised to TAIC in due course.

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Published 29 May

France: Collision between train and obstacle between Paris-Nord and Ormoy, 1 February 2012

For the full report, click here.

At 06:10 (local time) on 1 February 2012, a Crépy-en-Valois–Paris-Nord commuter service struck a ceramic anchorage insulator that was hanging from the overhead catenary near Sevran Livry-Seine-Saint-Denis. The insulator broke the front window of the train and knocked the driver unconscious.

The investigation found that the accident was the result of a manufacturing defect in the insulator, pores having allowed cracks to develop and grow over time.

The consequences were compounded by the fact that the windscreen, weakened by the cold, could not absorb the impact energy.

Recommendations

- The infrastructure manager should monitor the evolution of the number of breaks in ceramic insulators like those involved in the accident. In cases of significant increases, it should remove such isolators to from such places where they could impact on rail traffic in cases of failure.

- Train operators should identify the characteristics of front windows and heated glass panes on rolling stock. Heated windscreens which do not meet the European standard EN 15152 or French standard NF F 15-818 (or a national standard equivalent) should either be replaced or consideration should be given to improving their resistance to projectiles in cold temperatures.

- The train operator, suppliers and Bureau of Standards should ensure that developments in the European standard EN 15152 on windscreens take into account the variability of impact resistance across a wide range of temperatures. In addition, the national investigation body invites AGC Glass and Saint-Gobain to acquire, by tests, studies or other means, a real understanding of the impact
resistance of glass used for the front windows of rail equipment across the entire range of temperatures commonly encountered on the national rail network, and to share this knowledge in the context of the revision of EN 15152.