



# The independent investigation of transport accidents

## RAIB's perspective

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# Introduction

I will cover:

- who the Rail Accident Investigation Branch (RAIB) are
- and what we do
- the importance of independent accident investigation.
- common characteristics of investigations by the UK's Accident Investigation Branches (AIBs)
- would such a model work in other areas of transport safety?

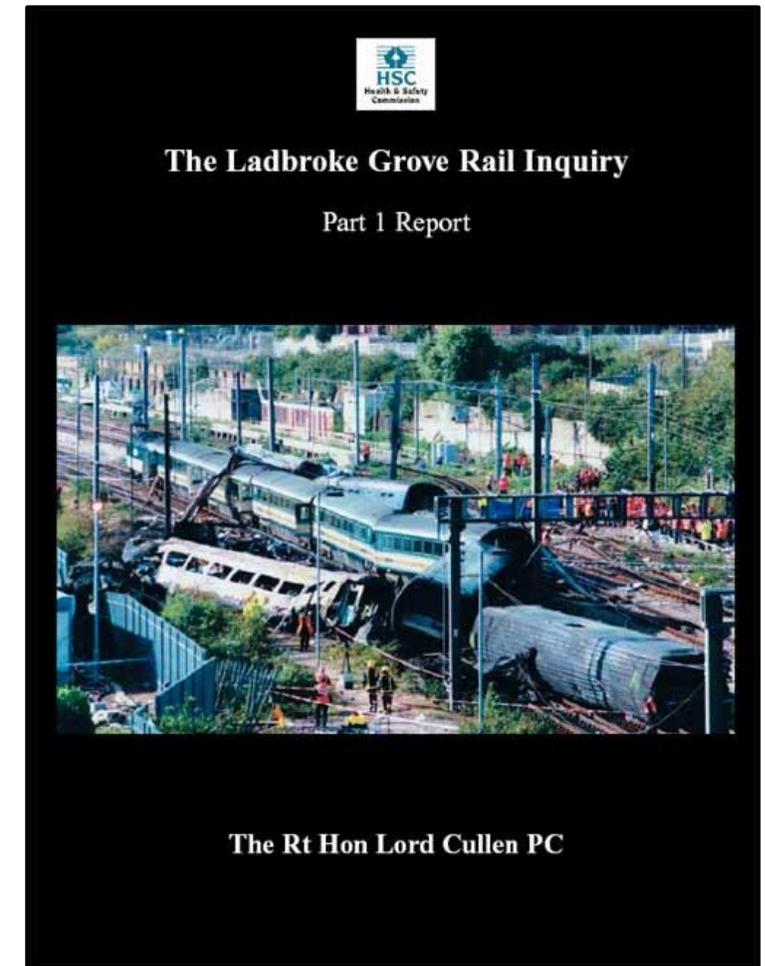


# Why was the RAIB established?



Rail Accident Investigation Branch

- The public inquiry into the 1999 Ladbroke Grove accident recommended that an independent organisation should be established to investigate rail accidents:
  - This should be independent of government, safety regulators, police and all industry parties.
- UK legislation:
  - Railways and Transport Safety Act 2003.
  - Railways (Accident Investigation and Reporting) Regulations 2005.
- The EU Railway Safety Directive (2004) also required member states to establish independent accident investigation bodies by April 2006.



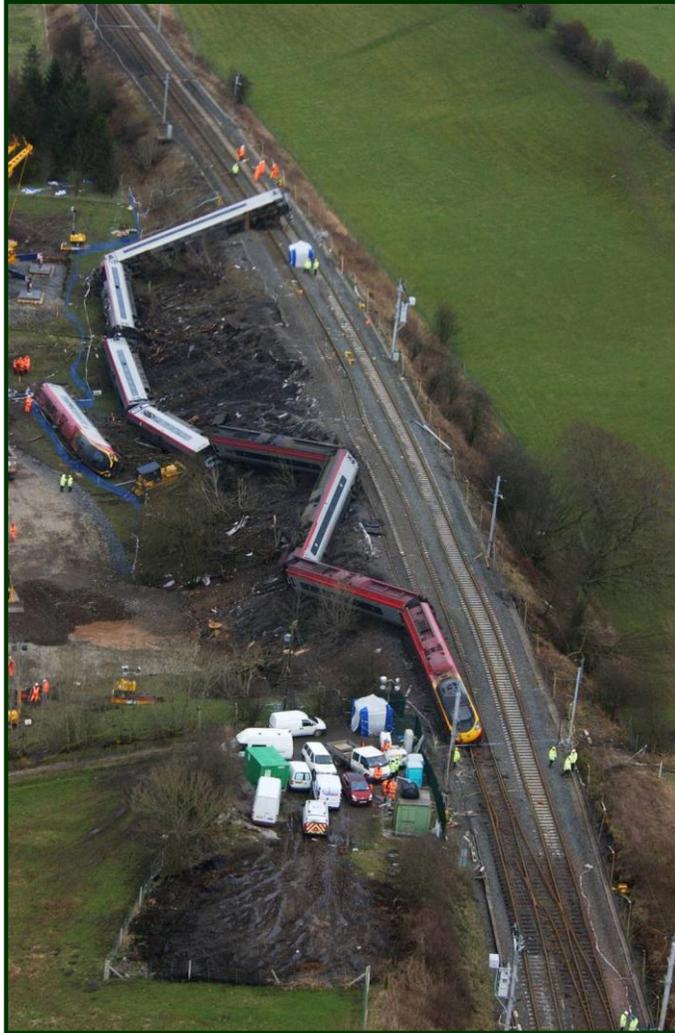
# RAIB: some key facts



- We independently investigate railway accidents to improve railway safety, and to inform the industry and public.
- Part of the DfT for administrative purposes, but we act independently for investigations. This functional independence is critical to our role.
- We investigate in line with our statutory duties and powers.
- We publish reports detailing our findings.
- We make recommendations to relevant end implementers.



# RAIB's scope - Mainline, metros, trams, channel tunnel and heritage rail



# Independent Accident Investigation: insights (1)



- The site phase is the tip of the iceberg – the issues that lie beneath take much more time.
- In pure safety terms, you can learn as much from smaller incidents and near misses as a major one – harder to get people to take remedial action though!
- Many of the accidents investigated by the RAIB were not predicted as credible by any formal techniques applied by designers, maintainers or operators.
- Most investigations reveal how combinations of factors combined to create a dangerous event – including human factors.

# Independent Accident Investigation: insights (2)

- Investigations highlight the vulnerability of existing risk mitigation measures and assist the design of new measures.
- Investigations provide valuable intelligence to those with the responsibility for safety.
- Investigations demonstrate to those affected and wider society that action is being taken and lessons will be learnt.



# Case study:

Fatal accident at Beech Hill level crossing,  
4 Dec 2012



## Summary of Accident:

- Level crossing with half barriers and road traffic signals (wig-wags) between Gainsborough & Doncaster.
- 12:31 hrs – sunny day.
- Lincoln – Doncaster train (cl.153) collided with Volvo car.
- Car driver injured, car passenger (4-year old child) killed.



# View of road approach 45m from wig wag signals (2 secs at 49 mph)

Photograph taken at the same time on the following day, under near-identical conditions.

Witnesses on site when photo taken agreed that the flashing red lights were near invisible (and the lowered barrier difficult to discern).



# Recommendations

- Replacement of all 36 W filament lamps with LED units.
- Processes for identifying level crossings with a significant risk due to sunlight obscuring lights.
- Development of a brighter LED unit.
- Improved maintenance of wig-wags.



# History and characteristics of UK accident investigation



The Rail Accident Investigation Branch (RAIB) is one of three AIBs covering Air, Marine and Rail Accidents

The model for independent no-blame investigation by experts can be traced back to article 26 of the Chicago Convention on International Civil Aviation, 1944 (with a specific Annex for aircraft accident investigation adopted in 1951)



# Characteristics of all AIB investigations (1)



1. **Independence** from industry, also prosecution and law enforcement bodies
2. The purpose of any investigation is limited to the improvement of safety – **no blame** is attributed, issues of liability are never considered
3. Investigations are undertaken by **specialists** (with inputs from industry and external experts)
4. Industry is obliged to **notify** certain types of accidents and incidents to the relevant AIB, and to provide certain types of safety data
5. AIBs have **powers of entry** and the **right to seize evidence**

## Characteristics of all AIB investigations (2)



6. AIBs have the right to carry out **interviews** of those who may be able to provide evidence – **those interviewed must answer questions** put to them (it is an offence to refuse to answer a question or to mislead an AIB inspector)
7. Witnesses are **protected from 'self-incrimination'** – statements made to AIBs are not shared with other agencies (except by order of a high court)
8. **Collaboration, and consultation**, with industry and external experts
9. Those involved in accidents are **kept informed** of progress and key issues

# Characteristics of all AIB investigations (3)



10. Although AIBs play no part in the prosecution process, they will **share most technical evidence** with others that have a duty to investigate (unless this is legally prohibited)
11. If requested by a coroner AIBs will **give evidence at an inquest**
12. The outcome of all AIB investigations are published in the form of a **report**
13. Where appropriate AIBs will make **recommendations** to improve safety by:
  - reducing the likelihood of a recurrence;
  - reducing the severity of an accident should it occur;
  - improving the emergency response; or
  - addressing any other safety issues.

# Could such a model work for highways?

- Top-level principles of **independent, no-blame and specialist investigation** are applicable to any mode.
- This approach can be applied to the analysis of individual accidents **or** larger data sets drawn from numerous investigations.
- A supporting safety system across the industry is needed – to turn learning and recommendations into action (eg RAIB/ORR/RSSB).



# Challenges for highways (1)

## Infrastructure and regulation

- Many infrastructure owners, manufacturers, maintainers, and regulators.
- Numerous different parties (eg private motorists, highways authorities, commercial organisations).
- Many rules - that are not necessarily easy to change eg TSRGD, DMRB, Highway code.
- The sheer number of road accidents = massive data sets.



# Challenges for highways (2)



## People and vehicles

- Diverse users of the highway - including vulnerable users - cyclists and pedestrians.
- Many amateur drivers – with no CPD or ongoing assessment.
- Newer and faster-changing “rolling stock” and rapid changes in technology.
- Culture: many road accident investigations (but not all) address questions of blame and liability.

# Application of the model to road collision investigation



## Base assumptions:

- Proportionality
- Sampling those cases where the potential for safety learning is highest.
- To be of value, investigations must be:
  - ✓ Independent.
  - ✓ Supported by suitable legal powers
  - ✓ Conducted by specialists/trained investigators.
  - ✓ No blame.

**Thank you**



**Thank you for your attention.**

**Please visit [www.gov.uk/government/organisations/rail-accident-investigation-branch](http://www.gov.uk/government/organisations/rail-accident-investigation-branch) for more information.**