



NATIONAL TRANSPORTATION SAFETY BOARD  
**Investigative Hearing**

Washington Metropolitan Area Transit Authority Metrorail train 302 that encountered heavy smoke in the tunnel between the L'Enfant Plaza Station and the Potomac River Bridge on January 12, 2015

<b>GROUP</b>	
<b>EXHIBIT</b>	

Agency / Organization

Title



OFFICE OF RAIL REGULATION

# ORR's Strategy and approach to the safety regulation of Britain's Railways

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# Railways in Great Britain

- 16,000 route km, one-third electrified
- 2,500 stations
- 130,000 staff (30,000 in Network Rail)
- 9,000 level crossings, 40,000 bridges and tunnels
- Over 23,000 trains daily (mostly passenger but over 1000 freight trains)
- Over 3 million passengers each week day, heavily focused on London where rail has a very strong market position
- 60 million tonne kilometres of freight moved every day, mostly coal and containers. But overall rail share of freight market about 8%
- £4.5 billion per annum subsidy focused on the passenger railway
- Also London Underground (1 billion passengers per annum), High Speed 1, Channel Tunnel, metros, tramways, heritage



# The mainline railway in Great Britain

- Network Rail – public sector infrastructure owner and operator.
- Passenger train operators – 17 passenger franchises (with 10 different owner groups); 3 “open access” passenger operators
- Freight train operators – 5 companies with different size/ownership.
- Supply industry – highly competitive, increasingly globalised.
- ORR – national safety authority & regulatory body.



# Metros and Light rail in Great Britain

- 2 underground systems in London and Glasgow
- London Underground has a network of 300 miles
- Longest tunnel is 20 miles
- 2 Light Rail systems
- 7 Tramway systems

# Office of Rail Regulation

- We are the independent safety and economic regulator of all railways in Great Britain. Most of our work focuses on the mainline railway; our safety responsibilities cover all railways metros and tramways in GB including heritage railways.
- Set up in 1994; our role derives from UK and EU legislation.
- Independent of ministerial control; public interest objectives are set by Act of Parliament.

# ORR – Structure and Governance

- ▶ Led by a Board (currently 11 members including CEO and Chair)
- ▶ Parliamentary scrutiny
- ▶ Decisions can be challenged in court by judicial review.
- ▶ Funded by the rail industry. Health and safety regulation is funded by a safety levy (based on turnover)
- ▶ Safety Inspectorate has about 110 staff with 50 inspectors

# Our Goal is reduced harm...

- Vision: Zero fatalities and ever-decreasing health and safety risk
- Excellence
  - In asset management and operations
  - In health and safety management and culture
- Result
  - Better management capability
  - Reduction in risks
  - Reduction in harm
  - Reduced likelihood of catastrophic incident





# We check compliance and push excellence in management...

- ▶ Checking legal compliance
  - ▶ Businesses control the risk
- ▶ Pushing for excellence in management by businesses
  - ▶ because excellent management means
    - ▶ more likelihood of compliance every day.
    - ▶ more likelihood of control of risks every day.
- ▶ Management maturity model helps us evaluate the capability of managers to control risks.



# Our law is European and home-grown....

- ▶ European Railway Safety Directive 2004/09
- ▶ Domestic Health & Safety at Work etc. Act 1974
- ▶ We grant permission to each business on the basis that they control risks using their management system
  - ▶ We re-do this at least every 5 years
  - ▶ We check that their system is up to a common European standard
- ▶ We check control of risks by management in each business
  - ▶ Compliance with the law
  - ▶ Through our plans for inspections and investigations



# Health & Safety at Work Act : key principles

- Those who create the risks from work activities are responsible for protecting employees and others from the consequences
- Act places general duties on employers, but also on self-employed, employees, manufacturers etc.
- Applies to all workplaces
- Sets a proportionate, risk-based approach with broad goals (rather than detailed requirements)
- At its heart is 'so far as is reasonably practicable' – a computation between the risk and the expense, time and trouble to avert it

# Roles of the key industry bodies:

## ORR

- enforces compliance with Health and Safety at Work Act (HSWA) and subordinate regulations for GB railways by:
  - > setting railway specific policy;
  - > producing guidance;
  - > inspection, audit and investigation of risk controls;
  - > driving improvement through advice and formal enforcement; and
  - > ensuring research is carried out.
- assuring system safety for mainline railway; and
- acts as National Safety Authority (Europe).

## Railways' duty holders

- duty to eliminate or control risk by:
  - > conducting risk assessments;
  - > implementing control measures within a Safety Management System (SMS) through setting safe systems of work, instruction, training, supervision, monitoring and review of the effectiveness of their controls; and
  - > co-operating with other operators and parties.
- licence condition requires railway group members (but only the mainline railway) to join RSSB. Others, for example suppliers, can join voluntarily.

## RSSB

- supports the mainline industry only;
- manages Railway Group Standards for interfaces (operational/performance benefits as well as safety);
- assists the industry in securing health and safety by:
  - > data gathering & modelling;
  - > research; and
  - > providing technical expertise.

## RAIB

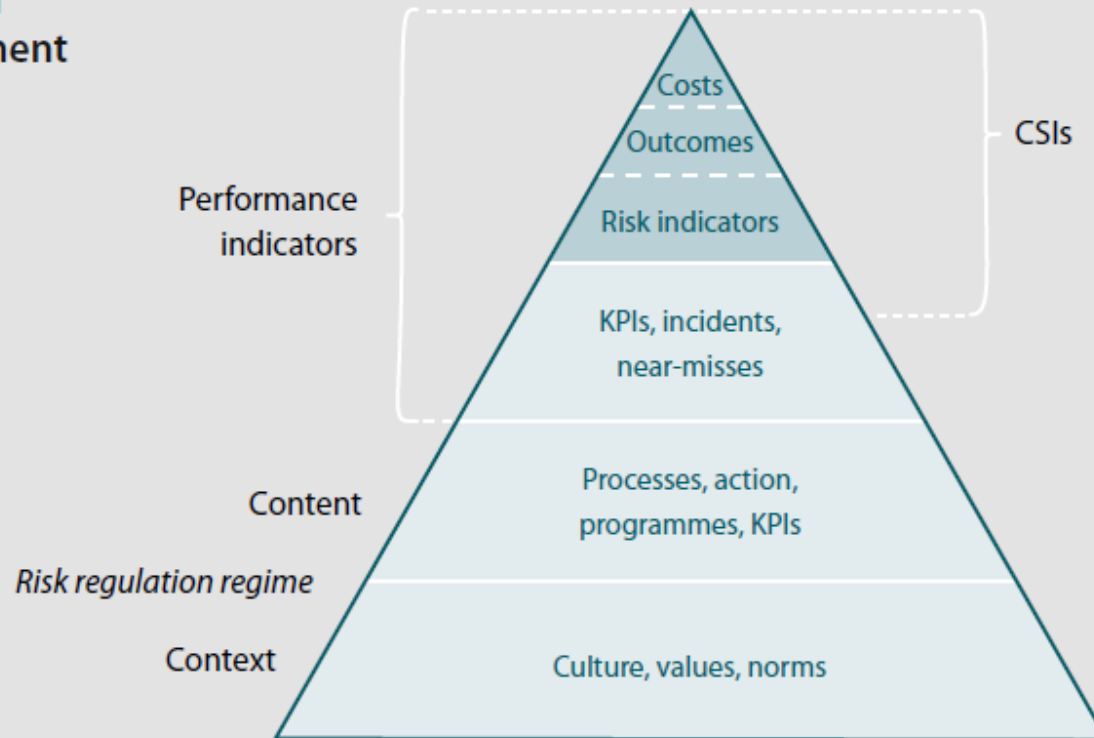
- independent investigation body for railways accidents/incidents;
- has no enforcement powers;
- produces reports with recommendations about preventing a recurrence;
- can produce urgent safety advice notices; and
- does not apportion blame or liability.

# Examining health and safety management systems in practice...

- Law
- Guidance on law
- Bench-mark on management capability
  - RM3: Railway Management Maturity Model
  - Levels from ad hoc to excellent for 26 elements of management.
- Clear expectation that Railway Undertakings and Infrastructure Managers operate at “excellent” management capability, stated in our
  - CSM supervision strategy document

# Assessing safety performance....

Figure 1 \_ Pyramidal model for railway safety management



# The industry has models to understand the risks...

## ➤ Strengths

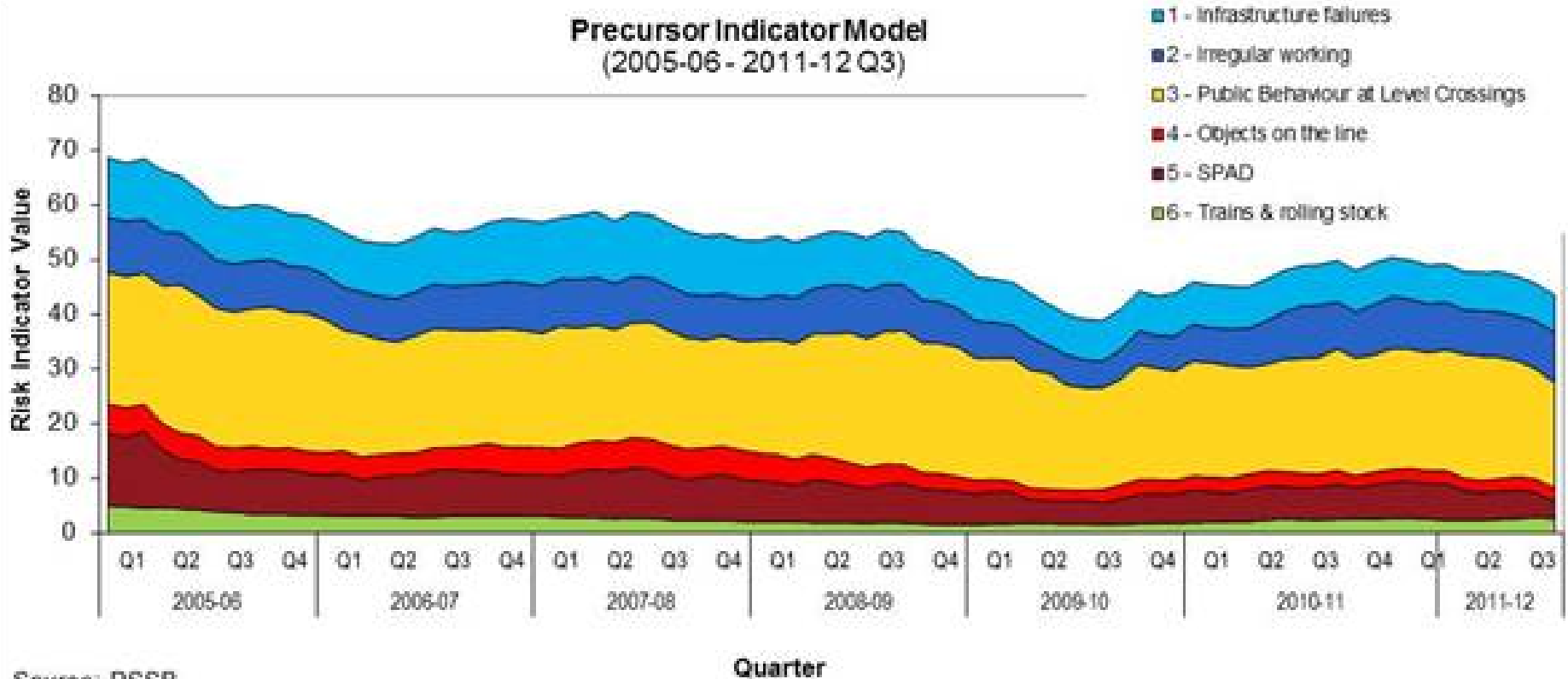
- *“invaluable, richer & more robust picture of railway safety risk than can be obtained from analysis of recent safety performance”*

## ➤ Weaknesses

- *Somewhat overstate risk (err on side of caution)*
- *Insufficient indication of confidence limits to the risk estimates*
- *Data input quality*
- Not the whole story: you need to consider management capability too
- They are an aid to our thinking on risk priorities and strategy



# This is what one industry model tells us...





# We prioritise our inspection work....

- ▶ This includes judgments on..
  - ▶ How well businesses are managing their risks
  - ▶ Our confidence that their performance will be sustained
  - ▶ Enforcement history
  - ▶ Public, political & media concern
  - ▶ How we can make a difference.

After analysis, our priorities for targeted checking focus on...

➤ **Risk priorities:**

- Level crossings
- Interface system safety
- Infrastructure safety
- Rolling stock
- Workforce safety
- Occupational health

➤ **Enablers (management):**

- Health & safety management systems
- Competency of people & human factors
- Change management



# The risk priorities link to our plans

## ➤ Resources:

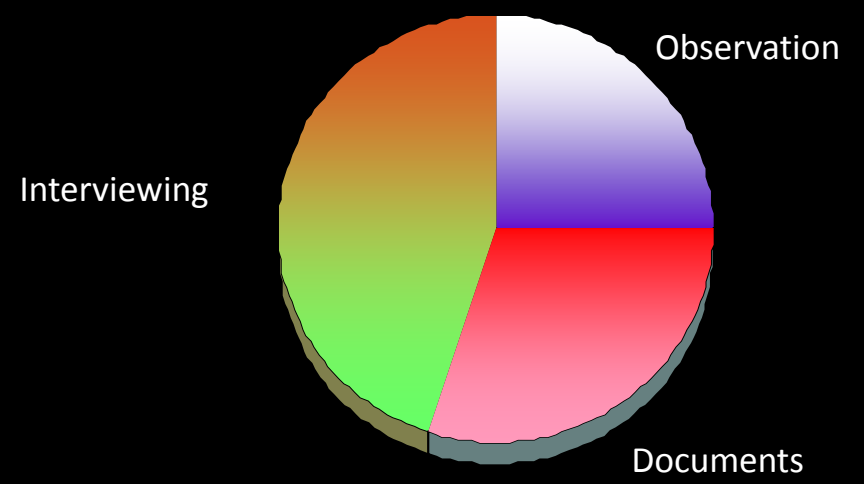
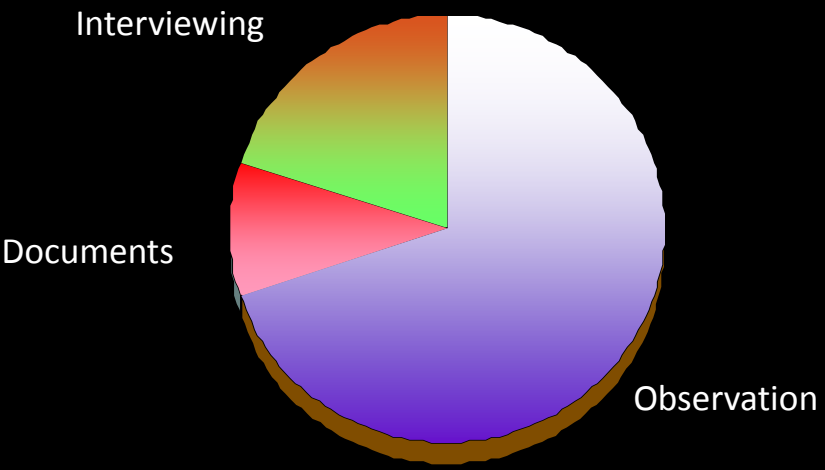
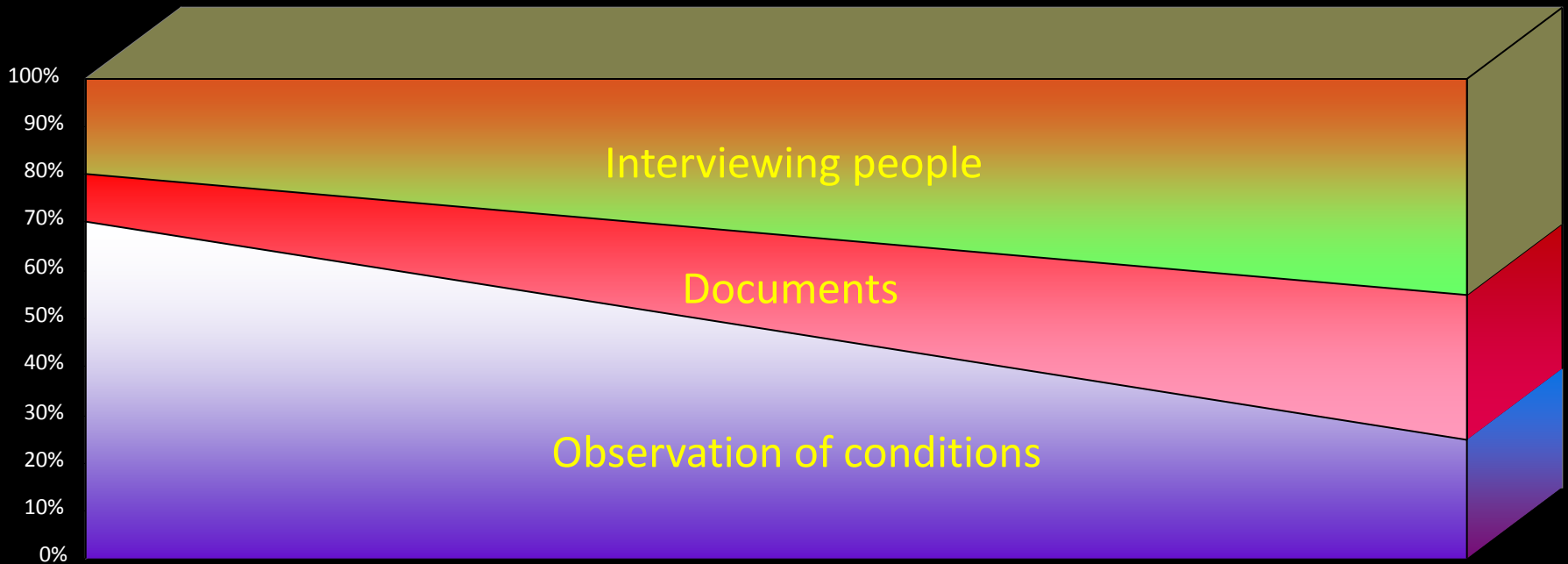
- are allocated to the programmes
- Guided by the approach set out in a strategic document for each risk

# So....

- ▶ For each sector
  - ▶ Mainline
  - ▶ Transport for London
  - ▶ Trams & light railways
  - ▶ Heritage
- ▶ We know
  - ▶ Our risk priorities
  - ▶ Our programmes of work
  - ▶ Our planned activities in each programme
- ▶ Illustrated in next series of slides

# We check safety is being managed properly from top to bottom in rail businesses.....

- *..because all that we do informs our picture of the capability of managers to control health and safety risks...*
- Includes...
  - Proactive inspection
    - Audit inspection of whole management system: people, procedures, outcomes (*More on next slide*)
    - Inspection of particular issues
  - Reactive investigation
    - Complaints
    - Incidents & accidents



# We believe in continuous improvement...

- Sharpen up on:
  - the match of our **work programmes** to our **strategy**.
  - keeping **strategy** under regular review
  - Identifying **potential impact** of our activities to reducing the likelihood of multi-fatality events using the **industry risk models**
- Sharpen our management of safety regulation
  - Use the **European Rail Agency cross-audit** results to help us do this.
  - **Inspection quality**: performance of least capable Inspectors comes closer to the practice of our best
  - **Regulatory decision-making** being clearly in line with our **policies**.