RAILWAY INDUSTRY ADVISORY COMMITTEE

Note of the Human Factors Working Group special meeting
Monday 3 March 2003
The Fortune Room, Rose Court.

Present

Aidan Nelson	Chair
Les Allen	Amicus
Steve Bence	ATOC
Dave Bennett	ASLEF
Phil Dee	RMT
Claire Dickinson	HSE
Emma Lowe	Network Rail
Ray Metcalfe	RIA (Halcrow Transportation)
Louise Raggett	Railway Safety
Ian Watson	RPC
David Woodhouse	Heritage Railway Association
Maxine Burke	RIAC Secretariat

1 Welcome and apologies

1.1 Aidan Nelson welcomed everyone to the meeting. He thanked Steve Bence for chairing the previous meeting held on 10 February 2003 in his absence.

1.2 Apologies for absence had been received from: Ann Mills (Railway Safety) represented by Louise Raggett; Jane Rajan (Ergonomiq Ltd); Graham Thomas (Thames Trains); Caroline Horbury (LUL); and Steven Bliss (HSE).

2 Background

2.1 This meeting was arranged specifically to discuss the group's remit and future strategy. In preparation members were asked to identify their key issues/risks ('top 10'), which could be used as the basis for developing the group's strategy and action plan.

3 Consideration of HFWG's role – terms of reference and membership

Terms of reference

3.1 After some consideration members felt the following captured its proposed objective:

To develop a human factors strategy for RIAC, including an Action Plan for promoting the consistent use of human factors best practice in the railway industry, aligned with the occupational health strategy.

3.2 It was agreed that the revised terms of reference should be submitted to RIAC for endorsement.

Action: Chair/RIAC Secretariat

3.3 The following was agreed by RIAC at its meeting on 12 March 2003:

To develop a human factors strategy for RIAC, including an Action Plan for promoting the consistent use of human factors good practice in the railway industry, based on the Joint Report on Human Factors prepared for the Cullen/Uff Inquiry.

Membership

3.4 The opportunity to widen the group's membership was welcomed. Members agreed a representative from each of the following groups should be invited to attend: employers; ROSCOs; maintenance operators; and Infracos. An initial suggestion for the rail maintenance representative was Lucy Adams (SERCO). Ray Metcalfe offered to advise RIA of the HF's invitation.

Action: Chair/RIAC Secretariat/RIA

4 Development of the group's strategy

4.1 Aidan Nelson thanked those who provided their 'top 10' key issues/risks in advance of the meeting (see annex 1). Louise Raggett (Railway Safety); Emma Lowe (Network Rail and on behalf of Caroline Horbury, London Underground); Dave Bennett (ASLEF) and David Woodhouse (Heritage Railway) gave oral details of their respective lists (see annex 2).

4.2 The individual lists highlighted a number of common issues. Members agreed the details should be put into key generic categories with consideration being given to developing a strategy identifying/dealing with any gaps.

4.3 The four suggested generic headings were:

i) Industry competence and managing HFs;
ii) HFs by design;
iii) HFs in operation; and
iv) Promulgating good practice and promoting its adoption.

4.4 Points made during the discussion:

- the group may experience difficulty writing strategic objectives for some of the key issues listed;

- some members felt there was a need for a high level document (similar to HSE's '*Securing Health Together'* used by OHWG) to anchor the group's work. It should also have the endorsement of all members;

- any such overarching document (with 3 or 4 key points) could be used by the HFWG to critique work in existence;

- the group would need to come up with a good way to critique work such as Railway Safety's research programme eg not being applied or was it universally accepted and outputs;

- consider a HFs strategy based on what had been done but not generally implemented by industry;

- complete a gaps analysis, including what needed to be done;

- if the group adopts a document based on risk and strategy objectives, the details should be separate and not a mixture of the two as this could cause confusion;

- consider how the group decides where its priority/highest risks are;

- be aware/alert to EC developments eg interoperability - licensing of drivers;

- members acknowledged that management did not truly understand human factors and industry tended to ignore the customer/public interaction element; and

- there was also concern about the updating of information on a regular basis (eg roster patterns which were not updated as regularly as they should have been) and ensuring the appropriate human factors element underpins any review of regulations.

4.5 The group's advice to RIAC on a good way forward should include resources and indicate the extent to which this group sees the failure to manage safety cases today. It was also believed there was a need to look at the extent HSE inspectors understand HFs.

4.6 Aidan Nelson agreed to prepare a one-page paper based on the four suggested generic headings stated at para 4.3 (break-down by 3 populations: of employees, passengers and public interacting with the railway systems). The details would be circulated for comment/input before the next meeting.

Action: All

5 Way forward

5.1 The group agreed to:

- review what was going on;
- provide advice on the overall need for research and research already underway;
- look at HF's in relation to hazards and risk;
- consider existing knowledge on assessment of risk (issues: data; knowledge of problem; solution);
- review industry's ability to adopt good practice; and
- identify key actions to support/deliver the proposed strategy.

6 Date of next meeting

6.1 The next meeting would be 10:00am Friday 4 April 2003 at Railway Safety, Evergreen House.

RIAC Secretariat
Mar 2003

(a) HSE Human Factors Team – Top 10 Work Areas

1. **Applicable to wide range of "people", RPI's, gateline, platform staff, signallers, drivers, contractors, maintenance, etc.**
2. **Operational focus not research**
3. **Top 10 derived from Jt Inquiry Appendix, RSC assessment findings, investigations and inspections**

Work Area	Insp	RSC	Jt Inquiry
1. Building human factors into design, demonstrating that systems are suitable and implemented. E.g. JLE, WCML, CTRL, ERTMS,TMS, Pendolinos, including old and new alongside,	Y	NOTHING SAID	HF 1/2/3
2. Warnings, reminders, job aids. E.g. route knowledge, IECC alarms, TPWS	Y	NOTHING	
3. Detecting and responding appropriately especially when situations demand sustained attention e.g. spotting cracks, IECC signallers identifying SPADs, sighting signals	Y	SAID Y	HF 6/7/8/9 X
4. Working patterns (fatigue) and fitness for work e.g. medication, significant life events	Y	Y LOT OF ISSUES	HF 10
5. People resources e.g. staffing levels, workload, management of organisational change, roles and responsibilities, dealing with emergencies	Y	Y	X
6. Education on human factors e.g. not just what human factors is but use of tools and techniques, how to implement and include HF in risk assessments and group standards	Y	Y	HF 14
7. Assaults to staff and contractors			
8. Communication e.g. how people get information in real-time, information to passengers in an emergency	Y Y	Y Y NOT	X
9. Culture e.g. contractors, confidential reporting, barriers to reporting, trust, challenging on the spot, will to do something	X	MUCH X	X HF 15
10. Responding to emergencies	Y	Y	X

HSC-RIAC-Human Factors Working Group

'Top Ten Suggestions' from Ian Watson, Rail Passengers' Council

Introduction

Naturally the RPC expects the railway industry to regulate the running of trains so that they do not collide or derail, and that therefore needs to be sufficient study/research to support these important aims. The list which follows (only the top four!) is thus more specific to passengers' expectations, and concern their two main areas of railway experience: at stations and getting to the right platform; and on-board train:

- Stations – Safe and Reasonable Access to Platforms
- Stations: Concourse Design and Crowd Control
- Trains (and Stations): Conveying Information to Passengers, including safety information.
- Trains: Layout design; luggage space, escape routes,

1. Station Design: Access

Perhaps this needs to be a revision to the HSE's Guidance Notes on Station Design. These are currently written from the perspective of a new station. Many of the problems arise because nearly all stations were built in the 19th century, and people have tinkered with them since, without really thinking about the impacts on safety and/or the convenience for passengers. Many changes have been made (e.g the provision of car parks), or are made without considering the impact on how passengers use stations, which then have consequences for their safety. There needs to be some guidance on design change procedures for existing stations which actually take into account how passengers use them, i.e. human behaviour, as well as safety of the railway. There also needs to be some recognition of what is affordable. And, very importantly, there needs to be a recognition that it's the wish to see more people using railway stations: we thus need to be very careful about making changes in design which make it more difficult for people using stations, even if we think we are justifying this on the grounds of safety.

For example (my hobby-horse!): The railway industry has removed good access to platforms at many small stations on the grounds of improving safety of the railway, but then left the passenger with either a long walk, sometimes involving using a busy main road or steep footpath. It is then stated that the industry (SRA) cannot afford to rectify the problem. This has also run counter to the requirements of DPPP.

2. Station Design: Concourse Layout of Large Stations/ Crowd Control

Many large stations have concourses cluttered by shops with inadequate waiting facilities. At Euston there are no waiting rooms for standard class passengers, and many people just sit on the ground. Is this something our

group should be paying attention to? The kiosks and sprawling passengers may constitute obstacles for other passengers.

An aspect of this is crowd behaviour and control. Do we have a strategy for dealing with large crowds when there is a major disruption to train services? Is there adequate guidance for both operational procedures, which take into account the points made in the first paragraph?

3. Conveying (Safety) Information to Passengers

After punctuality and reliability, a great concern of passengers is the provision of information. Much of this is to do with on-train information about delays, but also timetable information, notices on stations etc. At the moment there appears to be no consistent approach regarding the provision of safety information. There needs to be a common approach based on good human factors guidelines:

- Means – Announcements, Notices
- Where – On train; on station. (For example procedures could well be different for local/commuter trains than for long distance)
- How often (It is clear that automated announcements, repeated frequently, cause people to 'switch off').
- Standard formats versus detailed differences of rolling stock and station layouts.
- Also standardisation of what safety equipment is carried on a train.

4. Train Layout – Escape Routes.

This is related to No 1 above, but one wonders if enough thought has gone into the design of new trains. For example, on the new Voyager trains it is often difficult to get through the trains because of the standing passengers or the luggage in the gangways. Are there standards for luggage capacity? It seems ridiculous that overhead racks will no longer accept anything other than small hand-luggage. Has this been done on the grounds of safety – bags falling down?

Council of the Ergonomics Society

1. Developing Human Factors Capability in the Rail Industry

   1.1. Incorporating ergonomics in a serious programme for improvement in overall rail safety management

2. Increasing the Awareness of Human Factors

   2.1.Initiate a programme of system ergonomics, in preference to piecemeal design issues.

   2.2. Helping the industry to adopt HFIP approaches

3. Management of maintenance (minimising individual/team failure in inspection and detection of indicators that failure of a component is likely, maximising human contribution to system integrity)

   3.1. Human factors of line maintenance and repair

4. Safety Culture - all aspects of culture that influence safety through people.

5. Ergonomics design of information:

   5.1. Flow of information to support passengers
   5.2. Integrating information from multiple sources to give a coherent picture to line and station controllers.

6. Safety Critical communication

   6.1 Communication between station, lines and trains

7. Addressing the predicted human factors impact of interoperability on railway operations

   7.1.Training for drivers of international trains (between UK, France and beyond?)

8. Safety and security of passengers on stations, and station approaches

9. Escape and Evacuation

   9.1 Training for major incidents including involvement with emergency services

10. Human factors issues in automation (including CCTV,) in control centres

11. Accident and Incident investigation and reporting

11.1. Human factors contribution to the investigation of major accidents
11.2 Incident reporting including confidential lines

‘TOP 10’ KEY ISSUES

Network Rail

- Understanding route causes/errors;
- Fatigue/shiftwork;
- Safety critical;
- Competence management;
- Workload;
- Increasing awareness of HFs;
- SPAD management;
- Level crossings;
- Procedures/aide memoirs;
- Integration of HFs into safety management; and
- Ergonomics factors.

Railway Safety

- Tackling HF’s route knowledge;
- Fatigue/sleep apnoea/disorder;
- Signal sighting issues;
- HFs integration planning;
- Reliance of protective devices;
- Safety cultures;
- Safety data;
- Passenger and public issues; and
- Trackside safety issues.

LUL

- HFs and organisational change;
- Assuring HFs in contractual arrangements;
- Learning lessons from all inquiries;
- Safety culture;
- HFs awareness;
- HFs in control rooms; and
- Decision support for high-risk roles.

Heritage Railways

- Ergonomics (dealing with old train equipment eg standing to drive);
- Volunteer workforce;
- Customer base;
- Seasonal operations; and
- Standard pattern of service.

Light Rail

- Driving on line of sight;
- Signalling (in tunnels and streets); and
- Interaction with public.