

## HSC/E AGRICULTURAL INDUSTRY ADVISORY COMMITTEE (AIAC)

### TRANSPORT PROJECT GROUP WORKSHOP “SAFE ON-ROAD/SAFE OFF-ROAD”

Summary of workshop held at AEA Peterborough, Cambs on 10 December 2008

#### Attendees:

Alan.Plom (HSE – Chair)	Ian Beeby (Unite, the Union)
Adam Meredith (Office of the Rail Regulator, ORR)	Jamie Smart (NFU Scotland)
Adam Wyatt (BAGMA)	Jill Hewitt (NAAC)
Andy Scarlett (Scarlett Research Ltd)	John Collen (NFU)
Bill Bates (HSE)	John Gillespie (ORR)
Chris Evans (AEA)	Julian Linfield (Network Rail)
David.Owen (Lantra Awards)	Keith Christian (BAGMA)
Derek Holmes (Network Rail)	Keith Hawken (AEA)
Gary Rudd (Agricultural Industries Confederation)	Nigel Davy (IOSH)
Gordon Adam (Forestry Commission)	Peter Roberts (Energy Networks Association, ENA)
Hannah Moule (NFU)	Roger Lane-Nott (AEA)
Howard Pullen (BAGMA)	Simon Chiles (NAAC)
	Tony Mitchell (HSE)

**Apologies:** Michael Britten (NFU).

#### **1. WELCOME AND INTRODUCTIONS**

1.1 Chair Alan Plom (Head of Safety Section, HSE Agriculture & Food Sector) explained this was the 5<sup>th</sup> AIAC Transport Project Group workshop held since the Group was set up in 2005. This continued the theme “Safe on road / Safe off road” and had again brought together a wide range of stakeholders and authorities. The topics covered take a wide view of transport-related activities, including safe working near overhead power lines and the significant risk created by user-worked rail crossings, as well as the latest information from the tractor/trailer braking research, funded by HSE, DfT and manufacturers, through AEA.

1.2 The main aim was to update delegates and interested organisations on recent developments in research, legislation and technology/equipment, and to identify possible options for the industry and regulators to respond to the findings. It was also intended to share information on current activities and to identify topics and opportunities for further cooperative work, eg guidance, publicity and research.

1.3 This work supports HSE’s new Agriculture Revisited initiative. This is supported by HSC/E and is intended to reduce the number of fatalities in farming. Alan described the evolution and structure of the ‘programme’ and the various ‘workstreams’ being developed. Most relevant was a project being managed by Alan, aimed at stimulating improvements and communications with farmers through manufacturers, suppliers and dealers. Second-hand machines had also been identified as a significant element in the project too.

## **2. THE CURRENT PICTURE**

2.1 Tony Mitchell presented an update based on HSE's latest available statistics and information. This emphasised the continuing relevance and importance of this Group, as transport continues to account for 25% of agricultural fatalities and a disproportionately large amount of the transport-related fatalities across all industry sectors. Members were keen to receive a copy of the annual report on Fatal Incidents in Agriculture – these are now posted on the HSE website in the autumn. The increasing average age of farmers was discussed and a further breakdown by size of business and identifying incidents involving seasonal and vulnerable workers was requested, but this information cannot be readily provided. The position on road-related incidents was also discussed and members requested sight of the report of Richard Gard's study - This is a matter for DfT.

**ACTION** – HSE to post presentation on the HSE AIAC Transport Group webpage <http://www.hse.gov.uk/aboutus/hsc/iacs/aiac/transport.htm> .

## **3. OVERHEAD POWER LINES**

3.1 Alan Plom summarised current work in this area, including revision of ENAs G55, HSE's GS6 and other guidance, being carried out through the Arboriculture and Forestry Advisory Group (AFAG) and with the Energy Networks Association (ENA) through their Public Safety Committee.

3.2 Peter Roberts (Head of Safety, Health and Environment for ENA) confirmed that the farming community remains a priority for ENA as there is no indication that the high rate of fatalities and injuries is declining. All incidents reported could have been avoided, eg by looking at the work area, considering the size of the vehicle etc. Free guidance is available from local energy suppliers and on the ENA website:  
[http://www.energynetworks.org/spring/indexpages/enaindex\\_ndate.asp](http://www.energynetworks.org/spring/indexpages/enaindex_ndate.asp) .

3.3 Bill Bates gave an illustrated presentation, recounting his experiences as a Specialist Electrical Inspector and investigating many serious incidents on farms over the years. He has analysed these and identified causal factors. The common misplacement of materials, vehicles, equipment and buildings under or adjacent to overhead power lines (OHPLs) and the willingness of people to take risks is bemusing and worrying. This is a well known cause of fatalities and serious injuries, usually a result of the individual making contact indirectly, though a machine or materials being handled.

3.4 Incidents reported nationally through RIDDOR and the Electrical Incidents Database revealed ~4-5 deaths, ~15-30 injuries and some 350-500 'near misses' on farms each year. Although 'near misses' do not involve injuries, any could easily have resulted in an electrocution. They also usually cause major disruption to the electricity supply and lead to significant consequent cost.

3.5 The message is simple: "Look up – Stop!" and treat all power lines – regardless of voltage – as dangerous. Farmers should be encouraged to liaise with the distribution company if considering working close to lines (OHPLs or underground), to discuss safe clearance distances. Training on precautions and first aid should also be promoted. The

procedure for evacuating from a vehicle in contact with a line was described and discussed. Members requested guidance on the emergency procedures and contact numbers for Distribution Companies.

**ACTION** – ENA agreed to develop and place guidance on emergency procedures and contact numbers on their website.

3.6 The use of OHPL detectors (magnetic field detectors) was also discussed. The main concerns with these devices is that they have to be set to the line voltage and frequent or nuisance tripping could lead to operators ignoring the warnings or switching them off/muting the alarm. Ultrasonic systems eg for hi-ab loaders were also now on the market, but similar concerns remained. They should not be relied upon in safety critical situations such as this.

3.7 The development of GPS perhaps offers a possibility for building in location of power lines into farm/crop mapping systems. However, this information is not freely available, many current maps are not accurate and layouts are continually changing. There is also no financial incentive for manufacturers of farm GPS/guidance systems to incorporate this as an option. However, this approach would be beneficial if this information could be built into control systems to prevent operation of machine components (eg loader arms, booms, augers or other parts) to avoid contact or coming into close proximity with a power line.

**ACTION** – HSE and Members to report on any significant developments in systems to help avoid contacts with OHPLs.

3.8 It was concluded that there is no one single solution. Improved awareness, planning and management of operations was needed. Machinery design and selection was also relevant. However, this does not appear to be a universal problem (in other Member States) and consequently the CEN standard for sprayers is still being discussed. Members raised concerns about the minimum height and maintenance of OHPLs, and the effects of heat causing sagging. ENA consider that raising the minimum height (eg to 5.8m) would entail excessive cost and take many years. However, electricity suppliers recognise this is a problem and are willing to discuss the potential for burying or moving cables in particularly hazardous situations with landowners.

#### **4 CROSSING THE RAILWAY – UPDATE ON RESEARCH AND ACCIDENTS INVOLVING FARM VEHICLES**

4.1 Adam Meredith (HM Railways Inspectorate/Office of Rail Regulation (ORR)) described how ORR and Network Rail were working together to improve safety at ‘user-worked’ (or ‘occupation’) road/rail crossings (‘UWCs’). The study in the North East previously reported to the Group was being repeated elsewhere.

4.2 Of ~7,000 rail crossings, ~ 3,500 are ‘private’ UWC’s. It is necessary to strike a balance between the needs of rail users and the private and public users of crossings. However, incidents (fortunately usually near misses) are reported daily, so more needs to be done to reduce the significant risk to rail and crossing users. Trains carry up to 200 passengers so there is a significant risk of a major incident. This issue is becoming more important as usage of the rail system and train speed is increasing, farming practices are

changing, with increasing diversification and machinery generally getting larger. Access by the public is also increasing.

4.3 Farmers and other rural crossing users (eg contractors, utility companies, firms making deliveries to farms, etc), must consider rail crossings as part of their risk profile and give more thought to enhancing their training and control measures. Whilst Network Rail have a database of 'authorised users', visits by ORR have revealed many changes and new users. ORR are also speaking to other regular users visiting farms or off-lying land, including Royal Mail, Forestry Commission, Environment Agency and supermarkets.

4.4 The fundamental question is whether a crossing is still required or is there an alternative route? Control measures at each crossing vary (often on one farm), and changes in use by animals or the public need to be reviewed regularly. Instructions may not be clearly understood or relevant. Design and maintenance of gates and surfaces need to be considered and visibility can change due to vegetation, erection of buildings, fences, etc. Larger machines, long trailers etc increase the time taken to cross the line and it may be necessary to use banksmen. This is a 'shared risk' and if there are any significant changes or concerns then Network Rail should be informed.

4.5 Transport operations using rail crossings should be carefully planned and if necessary discussed with Network Rail, eg it should not be assumed that lines are not used on a Sunday. Landowners/farmers and employers should also make sure that routine and emergency procedures are clearly understood by their staff. This should be checked by observing users. Out-of-hours contact numbers for Network Rail/signallers should be obtained and saved on mobile phones. It is better to warn than to 'nip across'. Further practical precautions were outlined in Adam's presentation.

**ACTION:** ORR presentation to be posted on the HSE AIAC Transport Group webpage: <http://www.hse.gov.uk/aboutus/hsc/iacs/aiac/transport.htm> .

4.6 Network Rail's Julian Linfield (National Director of Safety and Compliance) and Derek Holmes (Head of Operations) outlined NR's view and endorsed Adam's concerns and advice. NR are keen to share information, develop systems and check if they are suitable and effective. 2,800 UWCs are used daily or regularly. The problem is compounded by the fact that there are 60 different types of UWC's. Their design often depends upon history and frequency of use. However, all crossings are safe, provided they are used correctly.

4.7 Communication is vital – with the signaller and internally within businesses using crossings. Written instructions and signage cannot be relied upon, eg where used by migrant workers. 90% of incidents and near misses arise from errors, abuse or violations in procedures. Hence NR's current publicity and TV campaign "Don't Run The Risk".

4.8 NR have recently reviewed their national 'Level Crossing Policy' and produced a 'Ten Point Plan'. Each crossing is assessed using the "All Level Crossings Risk Model" (ALCRM). Higher risk crossings need to be identified and tackled first. Ideally, all UWC's would be closed but this is obviously not a practicable solution in many cases. Provision of alternative means to cross railways (eg bridges or underpasses) are also very expensive, as is installing automatic barriers etc. Education and enforcement are therefore critical elements in their

strategy. NR intend to be 'better neighbours', eg to improve vegetation and pest management, and staff are willing to provide advice and help authorised users review and produce adequate risk assessments. Equally, clear and persistent violations will be pursued with legal action, to encourage a change in behaviour. Advice and contacts are available via NR's Helpline or website: <http://www.networkrail.co.uk/asp/1538.aspx>

4.9 The use of new technology was also discussed, eg to predict train location using GPS. A communications programme for signallers has been instigated (SAF6) to improve competence and procedures, safety critical communications (use of phonetic alphabet, etc) and to build closer relationships with users. Members advised that new, simple training and education material is needed. NR has improved their understanding of the changes in farming but need an agricultural representative on their newly formed 'National Level Crossing Safety Group'. This includes highways authorities, local authorities, trades unions, etc. The NFU's Michael Britten was suggested as he has previously been involved with the Rail Engineers on this topic. Jamie Smart pointed out that NFU-Scotland was a separate body and he had tried for 9 months to 'get into' Network Rail.

**ACTION** – Network Rail to liaise with Michael Britten/NFU and Jamie Smart/NFU-S.

## **5. REPORT ON TRACTOR/TRAILER BRAKING RESEARCH**

5.1 Andy Scarlett gave an update on his research: "In-service assessment of trailer and trailed appliance braking systems condition and performance". This research is being jointly funded by DfT, HSE and the AEA, with support from manufacturers. The report is expected to be published early in 2009 and will be put on HSE's Research webpage.

5.2 The background and scope of the problem and the implications of pending European legislation (outlined in the notes of previous meetings) was reiterated. This will be detailed in the Research Report when published. The research endorsed the previously reported findings on the condition and standard of brakes found in-service, ie,

- (i) inadequate/illegal trailer brake performance is typical, leading to excessive wear and failure of tractor brakes – This has the potential for significant cost savings as tractor manufacturers are now refusing to repair tractor brakes under warranty (typical cost £2000-3000);
- (ii) maintenance, and ease of adjustment, is crucial (age of trailer is immaterial!);
- (iii) larger 'foundation' brakes are needed - an issue for designers and purchasers;
- (iv) load sensing is important to avoid excessive braking and consequent tyre wear, when brake size is increased;
- (v) manufacturers and users know that weight and speed limits are being exceeded.

5.3 The report will include practical recommendations and feasible options for farmers to improve the existing fleet. The key elements and cost of upgrading existing systems fitted to trailers, and the economic benefits of specifying and maintaining brakes to a suitable standard include:

- (i) encourage/assist brake adjustment by fitting improved adjusters, as fitted to commercial spec brakes);
- (ii) increase brake actuator size (air or hydraulic) to increase braking force;
- (iii) increase brake hose diameter to improve system response time (cost ~£60);
- (iv) fit breakaway failsafe systems, to comply with existing C&U Regs (cost ~£300);
- (v) provide load sensing, and
- (vi) fit larger brakes, to improve heat dissipation [ie commercial spec axles, cost ~£800 if fitted as replacements but much cheaper when supplied as standard].

5.4 The cost of upgrading existing trailers to provide effective brakes is therefore between £700 and £1800. Purchasers need to be informed of the relative costs and benefits of 'buying wisely' and to understand the basic specifications needed. Andy is writing a series of articles highlighting the key points, to appear in coming weeks/months, eg for Profi and Classic Tractor and by Tony Mitchell in a Farmers Weekly Academy. The recommendations will also be featured at shows (eg Royal Norfolk, Cereals, LAMMA and incorporated in HSE's SHADs.

5.5 There was some criticism over the limited number of trailers studied and it was argued that these did not reflect the 'top 20%' of front-line trailers in current use. However, the examples used were considered sufficient to draw meaningful conclusions and produce sound advice for users and purchasers. Particularly worrying was the finding that some trailers still did not meet current legal requirements even after they had been serviced.

5.6 Methods of brake testing, the implications of load sensing, axle/suspension configurations, the use of ABS and the perceived merits of air brakes relative to hydraulic were also discussed. This is a misconception in the industry – the key is to design and fit brakes with adequate capacity and then maintain them to ensure they are reliable and effective. Andy recommended that we need to move away from the 'single brake line' approach and the current guidance should be revised to reflect this.

5.7 Members agreed that the research was excellent value for money. Tony Mitchell reported that HSE's Minister Lord McKenzie was interested in the outcome and implications of this research and a brief had been prepared in anticipation of the launch of the Report, in consultation with DfT. It was intended to publicise the findings at LAMMA Show in January and a 'flyer' would be produced summarising the findings and recommendations. These would also be highlighted in a set of panels for display on HSE's mobile exhibition unit.

5.8 Andy was meeting with the Tractor Manufacturers group the following Monday and would feed back views on what the industry wanted from discussions at the Transport Workshop. Members agreed the main issues and need to emphasise the 'good business' message, aiming to influence the more discerning buyers by providing information to challenge manufacturers and suppliers.

**ACTION:** HSE to inform Members when the research is published and when any other relevant information is produced, to publicise the recommendations as widely as possible.

## **6. REVIEW OF MEMBERS ACTIVITIES**

### **6.1 AEA – Update on Tractor Testing Scheme**

- 6.1.1 Further to the discussions at the last Workshop, Roger Lane-Nott described the ongoing discussions with DfT and others concerning the development of the proposal for an industry-led 'National Tractor Testing Scheme' (NTTS). It was hoped that by providing evidence of satisfactory performance of tractor brakes and general 'roadworthiness', users would be able to benefit from increases in speed and gross weight. AEA had suggested changes to the Construction and Use Regs to allow this. They now needed clarification from the NFU on their view on self-regulation and what the industry wants.
- 6.1.2 He hoped HSE would be supportive too. HSE reiterated that this was a matter for DfT but acknowledged that any scheme that would improve maintenance would be beneficial off-road too. However, DfT have to consider wider implications and conflicts in relation to other road users, maximum axle weights, etc. Although proposed as a voluntary scheme, such a scheme may also still require new legislation to permit its introduction. This would not be easy to get on the statute book.
- 6.1.3 Hannah Moule recognised that the AEA's proposal had come a long way and cautiously supported it in principle, but the NFU would favour a system that still permitted the status quo for those who did not want to take advantage of higher speeds and weights. It would also be necessary to look at where tractors and trailers would be tested and the question of cost of a 'license fee' to maintain the database.
- 6.1.4 Roger argued that the industry must prove itself capable of self-regulation and it was important that the dialogue should be kept open and all sides of the industry to work together. Hannah advised that the NFU would need firm facts before they could consult their members, eg % of 'large' vs 'small' tractors and the number of trailers.

**ACTION:** AEA, NFU and other interested parties to continue discussions.

### **6.2 NFU - Guidance on Transport Legislation**

- 6.2.1 Hannah Moule explained that the NFU project to produce a simple 'at a glance' guide for farmers had been delayed until November due to staff changes but they were now about 2/3 through the first draft. Input from other organisations will be needed, including sponsorship (2 manufacturers were keen and AEA offered assistance).
- 6.2.2 Other existing sources of reference were discussed. The books produced by Mike Braithwaite and Andy McMahon were too detailed for this purpose. The DfT's guidance for VOSA Examiners was suggested as a useful reference, although some points need to be clarified/corrected.

- 6.3 **BAGMA – Training for Brake Testing + Events** - Keith Christian described the new course offered by BAGMA, extending their scheme for PUWER and LOLER Examiners in dealers. This would support the proposed tractor/trailer testing scheme. Howard Pullen mentioned the Regional 'Breakfasts' BAGMA propose at shows, eg Royal Highland, Cornwall and Norfolk, and an evening seminar at LAMMA. They would be interested in running joint presentations.
- 6.4 **Lantra Awards – Developments in Training** – The National Occupational Standards (NOS) – which form the basis of all qualifications - and 'Sector Approved (Job) Profiles' (SAPs) are being reviewed, and would be considered by Lantra SSC's Industry Groups. Training for Experienced Operators has been identified as a key area and it as suggested that the tractor/trailer operators proficiency test should be expanded to include the braking issues discussed. The EASI training scheme for purchasers of ATVs promoted by AEA members would also provide a useful model. BAGMA also reminded the Group of the installation training provided to operators of new machines – the groundcare sector are particularly good at this. The potential for 'CPD' was also discussed.
- 6.5 **NAAC – Assured Land-Based Contractors Scheme** - This was becoming well-established, the NAAC providing support, guidance and training for members to improve standards. A SHAD featuring the issues discussed at the Workshop was suggested.
- 6.6 **Forestry Commission – Working Near Overhead Power Lines** – Graham Munford mentioned their proposed work with HSE exploring methods for working near live power lines.
- 6.7 **AIC –Safety of Delivery Drivers** – Garry Rudd said that information and instructions would be produced for drivers visiting sites in relation to overhead power lines and use of level crossings. They would trial model blank risk assessments on their website before harvest in 2009.
- 6.8 **IOSH Rural Industries Group – Networking Events** – Nigel Davy suggested that the topics covered at the Workshop would form the basis for a useful event and he would pursue this with the Committee.
- 6.9 **Unite – Publicity** – Ian Beeby reported that he continued to support local SHADs and other events, eg the Safety Arena at the East of England Show. He continues to write regular articles on current h&s issues, and would feature the topics discussed in future issues of Landworker. He was also interested in the VQ's 'on-line'.
- 6.10 **HSE – 'Agriculture Revisited' Initiative/Equipment Supply Chain Project** – Many of the issues discussed during the Workshop were relevant and would feed into the Project. This could include HSE's seminars for BAGMA Dealers. A Steering Group would be formed, involving key organisations involved in the supply chain.
- 6.11 **HSE – Insurance Initiative** - There were no significant developments to report on HSE's Insurance Industry Initiative, aiming to establish risk-assessed under-writing.

## **7. REVIEW/FEEDBACK & SUMMARY OF ACTIONS**

### **Actions proposed included:**

- (i) HSE to post presentations on the HSE AIAC Transport Group webpage.
- (ii) ENA to develop and place guidance on emergency procedures and contact numbers on their website.
- (iii) HSE and members to share any significant developments in systems to help avoid contacts with OHPLs.
- (iv) Network Rail to liaise with Michael Britten/NFU and Jamie Smart/NFU-S.
- (v) HSE to inform Members when the research is published and when any other relevant information is produced, to publicise the recommendations as widely as possible.
- (vi) AEA, NFU and other interested parties to continue discussions over tractor/trailer testing scheme.
- (vii) NFU, AEA and other interested parties to liaise to produce guidance on transport on the road.
- (viii) NAAC to organise SHAD for contractors.
- (ix) IOSH to organise 'Safe Transport' Networking event.
- (x) All to publicise available information on trailer braking, overhead power lines and use of level crossings.
- (xi) AIC to develop and trial a model risk assessments on their website.
- (xii) HSE to convene a Steering Group for the Equipment Supply Chain Project.

## **8. FUTURE OF THE AIAC TRANSPORT PROJECT GROUP**

All members agreed that transport was a major topic relevant to their organisations. The themed Workshop format is an effective way to discuss key and emerging topics, share information and keep everyone up to date. Another workshop should be organised in 2009, preferably before the show season - subject to sufficient topics and information being available to justify a meeting. Members would continue to liaise meanwhile.

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