# Railway Safety Commission

## Safety Audit of Iarnród Éireann

Report

November 2007

# Contents

## Appendices

# 1. Executive Summary

1.1.0.1 The partial audit of Iarnród Éireann has shown the company continues to invest significant time and effort to develop an effective safety management system focused on addressing matters proportionate to risk.

1.1.0.2 Indeed, the range of initiatives underway is large and at times may be having an adverse effect as there is inter-departmental duplication of effort in a number of areas – for example, in relation to safety critical communications.

1.1.0.3 The Iarnród Éireann organisation is continuing to evolve and although the intent of the Company Safety Standard 3 process is understood, validation of change in accordance with the requirements of Railway Safety Standard 53 is taking longer than it should – in particular in respect of the splitting of the infrastructure department.

1.1.0.4 There are real pockets of good practice worthy of wider adoption across the company – for example the General Manager North and East's very systematic approach to safety management in an operational context.

1.1.0.5 Competence management is evolving and needs to move towards the standards being achieved in respect of train drivers through the network of District Traction Executives. Also of note are the steps being taken to manage the competence of shunters. Of particular concern are the arrangements in mechanical engineering where significant further time and effort needs to be expended to deliver a functioning competence management system; however plans and resources are being put in place to remedy this.

1.1.0.6 Of the technical recommendations the two of greatest immediate safety significance are those relating to the operation of the wheelshop at Inchicore works and lone working within the signalling element of the infrastructure department along with the related issue of lookout availability to structures, buildings and facilities.

1.1.0.7 All recommendations are summarised in Section 5 of this report.

1.1.0.8 Throughout this audit Iarnród Éireann personnel have been consistently supportive of the audit and have shown a positive approach to the audit team's requests for verification.

# 2. Scope of report

2.1.0.1 This report, submitted to the Railway Safety Commission, details the findings of the partial audit of Iarnród Éireann's compliance with their accepted Railway Safety Case (dated October 31st, 2006) and the conditions contained within the Railway Safety Commissions acceptance certificate dated January 30th, 2007. The report is derived from the output of interviews with employees of Iarnród Éireann detailed in Appendix A of this report and examination of standards, records and other documented evidence provided as verification that the stated position is underpinned.

2.1.0.2 This report reflects the position as verified during the period October 23rd 2007 – November 6th, 2007 and is limited to the specific areas addressed in this report. If this report is silent on any matter it should neither be construed as indicating that the matter was covered within this partial audit or that the audit team has formed a view on the adequacy or otherwise of the arrangements Iarnród Éireann had in place at the time of the audit.

# 3. Methodology

3.1.0.1 The Railway Safety Commission's project manager for this audit (Mary Molloy, Principal Inspector) briefed the lead auditors (David Marsden and Aidan Nelson) on the expected scope of the audit of Iarnród Éireann and the key issues within this that they had identified and wished to be considered. Additionally, the lead auditors were encouraged to identify other issues to be addressed in the audit. This briefing took place on October 23rd 2007.

3.1.0.2 Following this briefing the lead auditors met with members of the Iarnród Éireann senior management team for initial discussions of the nature of the Iarnród Éireann operation and approach to safety management within the company. These initial discussions enabled the lead auditors to identify in more detail the areas they wished to probe during the formal audit interviews. These discussions took place in the period October 23rd, 2007 – October 26th, 2007. Additionally, members of the audit team requiring competency in personal track safety were trained and assessed on October 25th, 2007.

3.1.0.3 Next, the principal auditors working with the other members of the audit team refined the scope of the audit and developed the areas of questioning around which each of the audit interviews would be conducted. These were reviewed to verify that collectively they would enable sufficient evidence to be gathered to address the agreed scope of the audit. Specimen question sets were provided to the Railway Safety Commission's project manager for review.

3.1.0.4 The audit interviews followed as detailed in Appendix A. Verification by document and computerised records reflects those provided to the audit team on or before November 8th, 2007. Observations and recommendations are derived from the verified evidence as available at this date.

3.1.0.5 A draft copy of this report was provided to the Railway Safety Commission on November 9th 2007. Comments raised have been incorporated in this final report. Additionally Iarnród Éireann was, on November 13th, 2007, briefed on the findings of the audit and their comments have been considered in developing this final report.

# 4. Findings

## 4.1 Safety plans

4.1.0.1 Corporately the Railway Safety Programme 2004-2008 constitutes the company safety plan 2008. It has been verified that the company's Safety Review Group regularly reviews safety performance and identifies emerging priorities for action over and above those set out in the Railway Safety Programme 2004-2008. Where action is required this is remitted to the functional groups for operations, infrastructure, new works and mechanical engineering.

4.1.0.2 In so far as the operations discipline is concerned it has been verified that a 2007 plan has been produced, widely distributed and that progress in addressing the targeted areas is reviewed regularly by the Operations Safety Steering Group. Additionally it has been verified that supporting plans exist in respect of the North & East and DART General Manager areas and in turn that local implementation arrangements are robust in the Northern District which constitutes good practice. Implementation in the Limerick District has similarly been verified. In these areas it has been possible to verify that actions are further cascaded to responsible station managers.

**Observation 1 The wide distribution of the Operations Safety Plan for 2007 constitutes good practice, as does the cascade approach followed by the General Manager Northern & Eastern.**

4.1.0.3 The infrastructure safety plan for 2007 covers all disciplines reflecting the extant organisational structure. It has been verified that progress is regularly reviewed by the Infrastructure Management Meeting and Infrastructure Safety Steering Group. The infrastructure safety plan for 2007 has been cascaded to divisional level although it is noted that additional actions agreed at this level are not monitored by the Infrastructure Safety Steering Group. It has been confirmed that the progress at divisional level is reviewed at least quarterly. It has further been verified that a safety plan has been developed within the buildings and facilities and bridges elements of the infrastructure department. Formal review takes place on a quarterly basis with further less formal review at monthly team meetings.

4.1.0.4 Within infrastructure, project safety plans are prepared for large jobs and that for works to Underbridge 140 was verified. In addition specific method statements are prepared for all work undertaken by the Civil Engineer's "bridge gangs". An example was supplied and verification showed that this included references to emergency services and evidenced that it was prepared for briefing all those working on the project. This briefing is signed for to confirm receipt of the briefing and a copy of the method statement.

4.1.0.5 In mechanical engineering, the ongoing development of a departmental safety plan for 2008 has been verified. However, in so far as 2007 is concerned evidence of a departmental safety plan could not be verified. Rather, evidence has been obtained of the work in hand to develop standards and implement an enhanced safety

management system within the department. It is also of note that at departmental level it could not be verified that there were safety plans for 2007 at fleet / depot level. Similarly, it was not possible to verify the existence of a 2007 safety plan at Drogheda maintenance depot. At Fairview depot it was established that there is not a 2007 safety plan. Rather, as at the departmental level there are a number of on-going initiatives.

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| **Recommendation 1** | **Once the CME's departmental Safety Plan is introduced in 2008, Fleet Managers should have a means of implementing the plan within their specific responsibilities, either through generation of their own safety plans or equivalent Safety meetings.** |

## 4.2 Safety Meetings

4.2.0.1 Company level safety meetings – the Iarnród Éireann board's Safety Advisory Group and the executive's Safety Review Group – meet regularly. It has been verified that the minutes produced for each of these meetings are in a form that enables progress with actions to be reviewed. For each of these meetings it can be confirmed that the required attendance is understood.

4.2.0.2 In the Operations function the Operations Safety Steering Group meets regularly with defined attendance requirements. The minutes produced are variable in quality and do, at times, merely state the topic discussed and the name of the person responsible for action. Where this is the case it is not possible to establish either the action required or robustly track progress. The Company's Chief Safety & Security Officer is regularly shown as absent from Operations Safety Steering Group. Subsequent discussion elicited that this reflected a past requirement for his attendance.

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| **Observation 2** | **The required attendance of the Chief Safety & Security Officer at Operations Safety Steering Group should be formally reviewed.** |

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| **Recommendation 2** | **The specification for minutes of safety meetings should be considered by Safety Review Group and promulgated throughout the company.** |

4.2.0.3 Remaining with the operations function it has been verified that the General Managers hold regular safety meetings, which are minuted. However in the DART area it has been established that the chairmanship of the meeting has been delegated to the Operations Manager with the General Manager attending for part of the meeting to provide a link with Operations Safety Steering Group. Safety performance reporting at General Manager level safety meetings is not consistent. Of the documentation reviewed, that developed for use in the North and East area is best practice. It has been verified that the same approach has been cascaded and is in use on the Northern District.

4.2.0.4 The cascade of safety meetings to District level has been verified in the Northern and Limerick districts. Similarly, the cascade to station manager level has been verified at

Heuston, Pearse, Connolly and Limerick. The records kept of these meetings, which at the lowest level are known as Local Implementation Groups, are variable in quality and do not consistently enable verification that actions are tracked to conclusion.

**Observation 3** **Standardised reporting arrangements across the operations function would better enable internal benchmarking of safety performance and progress with delivery of safety plan objectives. The approach adopted in the North and East Area and the cascade to North district is the best practice identified in this audit.**

4.2.0.5 Within Infrastructure, the Infrastructure Safety Steering Group meets monthly with defined attendance requirements. Emerging safety performance is systematically reviewed. Minutes are generated which state the action required and the party to which it is assigned. Previous minutes are reviewed at each meeting.

4.2.0.6 Good practice noted within infrastructure was the 'Roadshow' undertaken in 2004-2005 where safety awareness was a key issue. It has been identified that an “Awareness and Issues” programme to reach all staff members from senior level to ground level is needed. It was further noted that this formed a minuted action of Infrastructure Safety Steering Group and was originally due to be undertaken in November 2007.

4.2.0.7 The cascade of regular safety meetings within infrastructure to divisional and local level is mirrored at headquarters with a bi-monthly meeting with technical staff. At the next level down in the facilities and buildings domain it has been verified that a similar meeting is held by the manager of the team along with his direct reports. The direct reports then hold a safety meeting with all the staff below them. This arrangement allows the cascade of information and for information to be fed up the management line with all meetings being minuted.

4.2.0.8 The Chief Mechanical Engineer holds monthly safety meetings, the Mechanical Engineering Safety Steering Group. These meetings started three months ago and it can be verified that the minutes are meaningful and actions are clearly allocated with a specified time frame for completion. Issues that affect operational safety are captured within the risk register for the fleet concerned; the risk register for MkIV carriages was tabled and it clearly states the hazards, actions against them, to whom they are allocated, the priority and due date. Aside from safety issues specific to individual fleets, emerging occupational safety performance is considered with agreed key performance indicators in place.

4.2.0.9 Fleet Manager’s Safety Meetings have likewise been in place for three months at Drogheda but were not minuted until October 2007. It has been verified that the initial set of minutes are meaningful and the actions were clearly allocated. The meetings are focused on occupational safety issues affecting the workforce; issues relating to rolling stock being addressed via the fleet risk register.

## 4.3 Employee safety briefings

4.3.0.1 There is no regular cascade of safety briefings initiated at company level. However, that relating to drugs and alcohol (q.v. 4.10.) has been initiated centrally in order to secure a consistency of approach across the company. Conversely, the issue of safety critical communications (q.v. 4.12) has been taken forward in different ways function by function, although cascaded as a priority by Safety Review Group. Thus, to date, the intent of recommendation SMS7 contained within the July 2006 report of AD Little is not satisfied.

4.3.0.2 Given the interaction between staff members across functional boundaries in which there are safety critical communications it is considered that there is benefit of an integrated approach to raising staff awareness and understanding of the required approach. This philosophy also applies in the area of possessions management where evidence gathered suggested that each involved department was not intending to use the same approach to raising awareness.

4.3.0.3 The routine safety briefing cascade in operations is via the minutes of meetings and overlapping attendance at each level of the cascade. However, there is no core brief originated by Operations Safety Steering Group.

4.3.0.4 Within Infrastructure, specific briefing sessions on safety statement and the risk register have been undertaken with a verified record of attendance. The audit team has been advised that it is hoped to progress these briefings to get full participation, however, it was not established how those not attending the briefing were captured nor how this is being tracked. The local Safety Executive undertakes some briefing of staff on the ground. For example it has been verified that all staff members reporting to the Permanent Way Inspector Dublin have been briefed recently on four items, one of which was the new Safety Statement for this area of activity. Iarnród Éireann have subsequently confirmed that all staff in the Dublin Division have been briefed on these matters.

**Observation 4** **Consideration should be given to the development of a corporate safety-briefing cascade from Safety Review Group and the wider adoption of common materials and approaches as evidenced in relation to drugs and alcohol. Similarly the Operations, Infrastructure and Mechanical Engineering Safety Steering Groups should consider better defining functional core briefing requirements.**

## 4.4 Organisational change

4.4.0.1 It has been verified that the arrangements for organisation change as set out in Iarnród Éireann's Company Safety Standard 3 and the supporting Railway Safety Standard 53 are understood at senior level in Operations, Infrastructure and Mechanical Engineering. It has been further verified that there is an intent to comply with these standards in taking forward organisation change currently under development:

- Splitting the infrastructure department into civil engineering and signals, electrification and telecommunications along with the associated changes to the divisional engineering structure,
- Merging the responsibilities of the General Managers North & East and South & West and the associated transfer of the HQ operations organisation to the combined general manager organisation,
- The introduction of fleet technical support at depot level in the Chief Mechanical Engineer's department,
- Of other developments in the Chief Mechanical Engineer's department it is of note that the Quality and Safety Manager's position has been filled (a Railway Safety Commission acceptance of railway safety case condition) and that six competency assessors have been recruited to enable competence management arrangements to be developed (q.v. section 4.27 of this report).

4.4.0.2 Notwithstanding the intent, it has not been possible to verify that there is a single shared project plan that is understood by the involved parties including those responsible for the validation of organisational change.

4.4.0.3 Within Infrastructure there is, as a result, little evidence that the arrangements in the applicable standards have been followed. Although briefed to Safety Review Group there is as yet no clarity when the necessary documentation – including the risk assessments – will be provided for consideration by the Safety Validation Panel to be convened by the Chief Safety and Security Officer. It is also of note that the organisational changes within infrastructure have been under development since January 2007 and are clearly continuing to absorb a significant amount of management time and effort.

4.4.0.4 The changes in Operations and Mechanical Engineering have been in process for significantly less time. Although the detailed documentation is as yet not developed, the departments in question remain confident that they can achieve validation within the next two to three months.

4.4.0.5 The requirement that the Chief Safety and Security Officer audits compliance with Company Safety Standard 3 has not been progressed as since the standard was approved no organisation change has been progressed to conclusion.

| Recommendation 3 | **The Chief Safety & Security Officer should initiate a structured review of the process by which the three identified organisation changes are being progressed to identify lessons learned to date.** |
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## 4.5 Engineering and process change

4.5.0.1 Company Safety Standard 6 and Railway Safety Standard 56 have been promulgated (the latter in draft form). Additionally, specific department arrangements apply pending completion of relevant departmental standards.

4.5.0.2 Within the Chief Mechanical Engineer's department it has been verified that the applicable company level standards have been in use since May 2007 for changes

impacting on other departments. For example, those relating to driving cab configuration and train operation standards. This approach has been verified by documentation provided for the modification that involved coupling units 2609 and 2716 together. Notwithstanding this progress in the Chief Mechanical Engineer's department, it was not evident that there is the same level of understanding of the requirements for the application of the corporate standard as is evident within infrastructure, particularly in the new works field.

4.5.0.3 For other changes that only effect the Chief Mechanical Engineer's department, evidence was seen at Drogheda of implementation using a Fleet Instruction and monitoring suitability and completion using that process. As evidence of this, Fleet Instructions DH/FI/063 '29000 Sab Wabco Brake Controller Battery changeout' dated September 7th, 2007 and DH/FI/045 'C1 cabinet door firm and wiring installation check' dated July 12th, 2007 have been verified. Also tabled were unreferenced project documents for a modification to address a problem with the roll pin in Class 29000 notch controller, which included a risk assessment. Arrangements for monitoring progress with modifications at depot level were described and appeared robust.

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| **Observation 5** | **As good practice, all formal documentation should carry a reference number, issue number and evidence of appropriate authorisation and control. (This issue has been recognised and the Chief Mechanical Engineer's department is gradually moving towards this for much of its documentation). Project description documents that capture risk assessments should be similarly treated.** |

4.5.0.4 Minor engineering changes that don't fall within the scope of Company Standard 6 are managed by the Chief Mechanical Engineer's Technical Manager using "custom and practice" processes. This would involve engineering drawings being checked and authorised by persons independent of draughtsman, and instructions being checked similarly.

4.5.0.5 The audit has identified that there is a lack of clarity as to the status of the standards relating to engineering change managed by the Chief Mechanical Engineer's department. Reference to hard copies indicates that CME Safety Standard 6 ME/DS/06 is at version 3 effective as of January 2003. However on the basis of the information shown on the intranet and as advised at more than one location it appears that this standard remains in draft or the users were looking at the wrong part of the intranet. The implication is that the wrong versions of the standards may be being used and that individuals are not aware a standard exists.

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| **Recommendation 4** | **The Chief Mechanical Engineer's intranet should reference the live versions of each standard as a priority and, as a second priority, advise which standards are being revised.** |

4.5.0.6 Notwithstanding the above recommendation, the intranet available within the Chief

Mechanical Engineer's department constitutes good practice with the potential for wider application within Iarnród Éireann.

4.5.0.7 Within infrastructure the established change process is planned and developed in a gated process with stage gates for approval as follows:

- o Stage E Feasibility
- o Stage D Design
- o Stage C Approved for Construction
- o Stage B Approved for interim operation
- o Stage A Final Certificate

4.5.0.8 Company Safety Standard 6 requires approval to be provided in the form of a certificate in response to a project description. In so far as the Infrastructure department is concerned the project description appears to be a comprehensive statement covering project definition, equipment, design and implementation strategy, safety management, compatibility with new infrastructure and introduction into operation. Within Infrastructure, the certificate is signed off by functional and professional heads prior to the start of each phase.

4.5.0.9 Within infrastructure it has not proved possible to verify that there are laid down procedures for the introduction of new products. Rather, it is a process of competent people exercising professional judgement. In so doing a "cross acceptance" approach is utilised, particularly where equipment is already used in Great Britain. Equipment used elsewhere which is already safety approved in that country will be assessed for potential gaps – particularly regarding application in an Irish context - and bespoke tests agreed to resolve the gaps. This process supports the Company Standard 6 submission detailed in paragraph 4.5.0.8.

4.5.0.10 Given the statutory approvals regime in force within Ireland, it is important that further progress is made to formalise the processes by which product acceptance and procurement is to be managed both within Infrastructure and also the Chief Mechanical Engineer's department. There is a lack of clarity concerning CME Safety Standard 8 which is variously shown to be at version 2 and effective as of January 2003 whereas the intranet refers to it as draft which is the understanding at depot level as well as in the Technical Manager's organisation at Inchicore.

| Recommendation 5 | **Safety Review Group should review the progress in developing and implementing standards relating to engineering change, product approval and procurement to ensure that they are consistent and when properly applied capable of delivering statutory and internal approvals in a timely manner.** |
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## 4.6 Emergency Planning

4.6.0.1 The audit has considered emergency planning from a number of perspectives:

- o Major incidents
- o Local emergency and evacuation plans contained within Safety Statements

- Liaison with and engagement of the emergency services
- Large scale and table-top emergency exercises

4.6.0.2 The company's manual setting out arrangements to be applied in response to a major incident, known as the "Red Book", is only subject to indirect document control as it was in the first instance issued with Railway Safety Standard 26 relating to the Company Emergency Plan. It has been established that the "Red Book" will next be reissued independently of the standard to which it relates when relevant organisational changes are implemented over the coming months. As such, existing arrangements would not provide for the controlled distribution of this document.

**Observation 6** **It would be good practice for distribution of the company emergency plan "Red Book" to be controlled independently of the standard to which it relates.**

4.6.0.3 Within Operations, significant effort has been expended to develop template local emergency and evacuation plans as an integral component of the Safety Statement. At station level a sample of local emergency and evacuation plans have been verified and it can be confirmed that those for Pearse, Connolly and Heuston have recently been updated. At these locations it has been verified that fire safety arrangements have been independently reviewed and remedial actions initiated as necessary. Fire equipment at these stations and at Limerick and Limerick Junction is annually inspected by a specialist contractor. At Connolly and Limerick Junction monthly checks of fire equipment are undertaken. However, at other stations this could not be verified. At all stations visited it was established that there are regular documented checks of first aid equipment.

**Recommendation 6** **Consistent intermediate monitoring of fire safety equipment should be introduced at all stations.**

4.6.0.4 The audit also considered the arrangements in place for emergency and evacuation plans at facilities managed by the Chief Mechanical Engineer. Here there is also evidence of progress in developing local plans for incorporation within the Safety Statement facility by facility. The arrangements at Inchicore were considered in greater detail and it has been verified that the emergency plan is substantially complete although no procedure for regular review is as yet in place. Work to develop a departmental emergency planning standard which will, inter-alia, address this is ongoing.

4.6.0.5 Notwithstanding the progress in developing emergency plans at local level the audit did not provide verification that the company level actions concerning standards and the resultant revision of their accepted Railway Safety Case as required in the Railway Safety Commission acceptance certificate were complete as at November 2nd, 2007. However, at the sample of locations audited it is clear that local emergency plans have been updated and, as appropriate, they address the matters detailed in the Railway Safety Commission's safety acceptance certificate (Condition 7.c refers). In so far as the other elements of Condition 7 are concerned it is evident that many affected staff

members have been briefed on the “new” local emergency plans and that training, particularly in fire safety and crowd control (q.v. section 4.7 of this report) is being progressed. Liaison with the emergency services is not yet handled consistently.

4.6.0.6 In reviewing the arrangements in the Operations discipline, consideration has been given to the basis on which emergency response is rehearsed in full scale and table-top exercises. The company level arrangements for an approximately annual major exercise involving participation of the emergency services and other agencies appear effective although there will have been no such exercise in 2007 as it has been deferred until the organisation changes in the Operations and Infrastructure departments have been effected. Planning for the exercise is underway although a date has yet to be set.

4.6.0.7 Evidence of table-top exercises in both the DART and North & East area has been verified down to station level. Some of these are internal and focus on, for example, station evacuation. Others involve the structured participation of the emergency services. Of particular note is the April 2007 table-top exercise on DART which, along with the lessons learned is feeding into the scenario for the next major exercise.

4.6.0.8 It is not general practice for local emergency plans and evacuation procedures to be made available to the emergency services. Rather they are the subject of discussion at structured emergency awareness seminars which complement ad-hoc meetings with the emergency services.

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| **Observation 7** | **There would be benefit in harmonising the arrangements for liaison with the emergency services and monitoring progress in order to identify those areas where remedial action is required.** |

## 4.7 Crowding

4.7.0.1 Arrangements for the management of crowding, in particular in relation to special events and service perturbation, were reviewed at Pearse, Connolly, Drumcondra and Heuston. At each location it could be verified that plans existed for crowd management. At Heuston it was not possible to verify that a documented procedure existed although the Station Manager and Assistant Station Manager competently described the arrangements employed for both service perturbation and major events. Conversely, the verified documented arrangements for Connolly and Drumcondra are comprehensive with evidence of processes for learning lessons form emerging experience. Of particular note at Connolly are the packs prepared in respect of train service perturbation, which have been issued to each of the staff who can be expected to take the lead in implementing controls.

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| **Observation 8** | **The packs prepared for staff at Connolly likely to have to implement crowding controls at Connolly due to service perturbation constitute good practice for wider adoption.** |

| Recommendation 7 | The arrangements for management of crowding at Heuston station should be documented in line with verified arrangements at Connolly and Drumcondra. |
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4.7.0.2 There is evidence of regular liaison with An Garda Síochána, in particular in relation to major sporting events at Croke Park and Lansdowne Road. It has also been verified that arrangements for the temporary closure of Tara Street station when there are major events in the city centre are agreed with the Gardai. Similarly, it is evident that there is ongoing dialogue concerning the case for and against the temporary close of Drumcondra in connection with major fixtures at Croke Park.

## 4.8 Passenger trains entering service

4.8.0.1 Arrangements within the Chief Mechanical Engineer's department and Operations do not interface seamlessly. Indeed, there is evidence of some apparently duplicate activity prior to a train entering service from maintenance. This has been recognised and a joint Mechanical Engineering – Operations working group with independent external facilitation has been established to identify options for change. If changes are made there is a commitment that they will be progressed in accordance with the Company Safety Standard 6 / Railway Safety Standard 56 processes.

4.8.0.2 In so far as current arrangements within Operations are concerned, preparation of trains for service utilise the operations manuals where provided and otherwise custom and practice / standard procedures. The Operations Manual for Mk 4 rolling stock reviewed in this audit appears fit for purpose and distribution has been controlled by virtue of it being issued with the weekly operating notice. It has been verified that the standard District Traction Executive checks of publications cover these manuals. The audit did not secure verifiable evidence to demonstrate that there is a plan in place to develop manuals for all extant multiple units.

| Recommendation 8 | A time-bound plan for the production and issue of operations manuals required to provide for complete coverage of the multiple unit fleet should be put in place. |
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4.8.0.3 Operationally at Connolly the District has identified when it is planned that a driver will not directly relieve another and has instituted arrangements to roster the station pilot driver to cover the gap and thus avoid the need for the train to undergo further preparation before its next working.

## 4.9 Third party rolling stock / trains operating over Iarnród Éireann infrastructure

4.9.0.1 The arrangements for the operation of Translink (Northern Ireland Railways) services over Iarnród Éireann infrastructure and vice versa are supported by a robust meetings cascade which includes joint twice-yearly Safety Review Group meetings. Iarnród Éireann monitors the performance of their train crew throughout and Translink does the same for their crews working to Dublin. Otherwise monitoring of safety is driven from

incident reports. It has been verified that Iarnród Éireann has in place arrangements to fit and utilise the Train Protection and Warning System on their trains working over Translink infrastructure. These arrangements provide for the training of staff in the operation of the system and assessment of their competency.

4.9.0.2 In so far as the occasional operation of heritage rolling stock owned by the Railway Preservation Society of Ireland (RPSI), this audit has verified that Iarnród Éireann has put in place arrangements to audit RPSI compliance with its Maintenance and Overhaul Policy, reference RPSI/IE/P/07, dated July 2007. It has further been established that independent consultants undertook this audit within the last two weeks and that a report is imminent.

4.9.0.3 When RPSI operates over Iarnród Éireann infrastructure, train crew are provided by Iarnród Éireann. Historically, steam specials have been driven by a pair of long established drivers with experience of steam traction. However, it has been verified that a training programme has been initiated in order to increase the number of drivers with the competence to drive steam locomotives. Although not specifically verified it has been established that hitherto sufficient guards have maintained their competence in operation of vacuum braked trains. It has been recognised that this competence is now fading and that specific training is likely to be required.

## 4.10 Drugs and alcohol policy

4.10.0.1 The briefing out of the Iarnród Éireann drugs and alcohol policy is being driven through out-based human resources managers in accordance with the Chief Safety and Security Officer's email of September 19th, 2007. This email stressed the urgency of distribution. However although signed down evidence of staff being issued with a copy of the drugs and alcohol policy in the DART area and on the North District has been obtained, at Heuston briefing has not taken place as the Station Manager said that further guidance was needed before the controlled distribution of the policy would take place.

4.10.0.2 The Chief Mechanical Engineer's HR department has issued the drugs and alcohol policy booklets to all CME staff verified by sight of a sign-off sheet. Recipients had to sign for the booklets to confirm receipt. Similarly, in the Infrastructure department it has been established that the drugs and alcohol policy has been issued to all staff in September / October 2007 although during the audit it was not possible to verify that it has been signed for by each staff member receiving a copy.

4.10.0.3 From discussion with managers at various levels and locations it is apparent that there is a high level of commitment towards the drugs and alcohol policy and a willingness to implement all aspects of it. However, there is a general wish within functional and local management for clarity regarding the testing arrangements and a start date for such testing. In so far as the arrangements for testing are concerned it has been established that a guidance document is currently subject to review and that distribution to line managers will occur in the near future.

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| **Observation 9** | **The significant commitment to implementation of drugs and alcohol testing in accordance with the policy will be harnessed when line managers have clarity as to the start date of testing and the arrangements by which they secure testing on a random or for cause basis. *Post audit note: on November 13th, 2007 the Iarnród Éireann Chief Executive advised that testing had now been initiated.*** |

4.10.0.4 Line managers interviewed in the operations and mechanical engineering departments demonstrated an understanding of the arrangements to be applied to ensure that the risk of staff booking on duty unfit by virtue of them taking prescription and over the counter medication is mitigated. This along with impairment through alcohol or proscribed drugs being the rationale behind the arrangements contained in Railway Safety Standard 3 concerning train crew booking on and off duty. Although it is clear that similar arrangements are known to the supervisors of safety critical workers in the engineering departments no similar standard has been referenced by them during the course of this audit.

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| **Recommendation 9** | **Consideration should be given to a Railway Safety Standard, which sets out the arrangements for the booking on-duty of all staff members competent to perform safety critical or safety related work.** |

## 4.11 Management of recommendations and corrective action requests

4.11.0.1 At the corporate level it has been verified that the Chief Safety and Security Officer has developed procedures to track progress in closing out recommendations arising from accident and incident investigation. The same approach is evident in relation to tracking progress from, for example, the AD Little study undertaken in 2006.

4.11.0.2 In so far as closed recommendations visible at the corporate level are concerned a report (finalised on November 1st, 2007) setting out the basis on which these have been closed has been prepared. Arrangements are being made for the internal safety audit team to physically verify that the actions said to have been taken have been discharged.

4.11.0.3 Within Operations the Safety Manager maintains a record of recommendations visible to Operations Safety Steering Group and it has been verified that this meeting reviews progress regularly. However, it is of note that the Operations database of recommendations operates independently of that in use within the Chief Safety and Security Officer's department.

4.11.0.4 Indeed, staying with Operations, it is clear that recommendations are systematically recorded at subordinate levels and progress in closing them out is reviewed. However, the basis on which records are kept reflect local custom and practice rather than a unified corporate approach. Given the pending organisational change, it is likely that a standardised process will evolve. Indeed, there is good practice in the North and East

area which utilises a common district level periodic reporting approach.

4.11.0.5 It has been verified that the Northern District maintains a database covering all A, B, C & D incidents and the recommendations arising. The close out process was verified by reference to event 758 (SPAD on November 9th, 2006 at signal SL815). However, as this involved the Chief Civil Engineer (designate) in taking forward actions with those driving inspection cars, the District is still looking for close out. The high level review of the district's database shows that the follow-up by other departments and other elements of operations such as the CTC is slow.

| Recommendation 10 | Safety Review Group should realise opportunities to rationalise the approach to managing recommendations to deliver efficiencies and facilitate the timely close-out of recommendations. |
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4.11.0.6 The audit has evidenced that the Chief Mechanical Engineer's department has instructions in place to address the investigation of rolling stock in traffic related incidents in accordance with the requirements set out in Railway Safety Standard 64. Issues arising are recorded on the fleet risk register which is the tool by which close-out and monitoring is effected. This has been verified in relation to investigation remit 2007 06/me/06-006 dated August 30th, 2007 which authorised the investigation of a locomotive fire, and two further investigation reports: 'report of the investigation into the fire on shunting locomotive 160 in Heuston Station Dublin on the June 21st, 2007', and 'report of the investigation into the fire on generator van 5603 No2 engine in Waterford station on July 6th, 2007'.

4.11.0.7 Reference to Railway Safety Standard 64 identified that there are two page 15s.

| Observation 10 | The next revision to Railway Safety Standard 64 should correct the page numbering of Railway Safety Standard 64. |
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## 4.12 Safety critical communications

4.12.0.1 Training is now included for all new recruits destined for Operations as a component of their basic training. Safety critical communications was a central plank of October's "safety week" initiatives – through for example mugs, "Safety Express", key rings with mini tool-box talk cards – all verified.

4.12.0.2 CTC voice tapes are now down-loaded and reviewed for all incidents. There are also a number of random downloads made at District level through the District Traffic and Traction Executives. The sample monitoring of voice tapes from CTC to establish levels of safety critical compliance of DART and Northern District drivers is verified. Although not specifically verified it has been established that monitoring is in place which also considers the performance of signalling staff.

4.12.0.3 Awareness of safety critical communications requirements is evident within the engineering departments. However, this does not utilise the same briefing and awareness materials as developed by the Operations function. The Operations

function is currently evaluating training for staff members who were not trained as new entrants, which has the potential for wider corporate use.

| Recommendation 11 | The good practice concerning safety critical communications evident in the Operations department should be rolled out corporately. |
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4.12.0.4 The mobile telephone protocol has within Operations been discussed at general managers' meetings and those attending have been required to sign for their attendance. Similarly there is evidence that the protocol has been discussed at local implementation groups but no sign-down has been requested. It has been further established that at least some District Traction Executives verify the status of mobile telephones; particularly, where a driver is specially monitored. It has also been established that the risks associated with inappropriate mobile telephone use by shunters is recognised as an issue. At Heuston it was stated that signal box voice tapes are used to identify if there are any shunter related conversations involving incorrect use of their mobile telephones.

4.12.0.5 The mobile telephone protocol isn't in the Rule Book and therefore in the strictest sense not covered by standard. However, because it has been circulated via the weekly notice and is included in the General Appendix it has been determined that thinking within Operations is that a breach of the mobile telephone protocol is considered to be a breach of the rules. However, Iarnród Éireann has indicated that there are issues to resolve with Northern Ireland Railways before this can be progressed.

| Observation 11 | Greater clarity of the standing of the mobile telephone protocol would be achieved if it were contained within the Rule Book. |
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## 4.13 Safe working of eight car trains on the DART network

4.13.0.1 Arrangements have been promulgated most recently via a June 2007 weekly notice, which builds on a December 2005 "shed notice". It is also evident that DART drivers have been briefed that they should, regardless of the length of their train, draw down to the monitoring equipment / mirror. It has also been established that Northern District drivers have been similarly briefed. Monitoring that this is taking place is, on a sample basis, undertaken by District Traction Executives.

4.13.0.2 Likewise for operation of eight car trains at DART stations not equipped with monitoring equipment (e.g. Greystones) arrangements have been published which require the driver of a departing train to proceed to an intermediate cab from which all doors can be seen, close the door from there and then return to leading cab and depart. This is recognised as a stop gap and a project is now in place to install monitoring equipment at Greystones and two other stations. This project is being delivered by the signalling element of the Infrastructure department.

## 4.14 Platform – train gap management

4.14.0.1 Corporately it is recognised that the Infrastructure department is in the lead on matters relating to the physical configuration station by station. In parallel it is clear that the Operations function takes the lead in monitoring incidents arising at the platform – train gap. Stopping points on the DART network are driven by the requirement for eight car working and it has been recognised that for shorter trains the train – platform gap issues may be exacerbated. A particular example of this is when four car Northern District trains utilise the through platforms at Connolly. Here, it has been verified that work is in hand to enhance the warnings regarding the platform – train gap displayed at the through platforms.

4.14.0.2 As there is no indication of train length to waiting passengers, the tendency to cluster close to the point at which access to the platform is realised is exacerbated (e.g. at Connolly (Platform 7) and Dun Laoghaire (North-bound through platform) when a short train arrives and a rush down the platform ensues.

4.14.0.3 It has been verified that Operations is monitoring platform – train gap incidents and this is covered in the safety metrics considered at general manager safety meetings. Incidents are picked up through the daily incident report and it has also been established that a breakdown of the contributory factors is input to the Synergi database. At Pearse station the Station Manager was able to demonstrate that incidents reported are followed up and although nothing untoward at the platform – train gap has been reported, there is a pattern in incidents relating to the safe use of stairs coupled with the wearing of glasses. Copies of records are retained locally.

## 4.15 Materials management

4.15.0.1 Application of Company Safety Standard 8, which addresses the policy and principles for procurement of materials, services and works has been followed through within the Chief Mechanical Engineer's department. In so far as the supporting Railway Safety Standard is concerned, the Chief Mechanical Engineer's department is operating on the basis that it remains in draft pending authorisation. There is currently no finalised supporting departmental standard (CME 08) although the draft is available on the intranet.

4.15.0.2 In the Chief Mechanical Engineer's department procurement is centralised with depots having limited authority (up to €500). However, even when the value is below this threshold the purchases are visible centrally on SAP. Whatever the purchase, it is the CME Technical Manager's team that approves the supplier and the specification:

- To source a new component, the Technical Manager's section will write to Procurement and will specify the supplier, usually the original equipment manufacturer, providing the manufacturer's part number if available.
- Procurement will enter the details provided into SAP; any changes to this are then traceable.
- If suppliers discontinue their products, procurement would find an alternative supplier but check their technical capability with the Technical Manager's section

- If a completely new supplier is requested then Procurement will evaluate the company from a commercial perspective, but the Chief Mechanical Engineer's department would evaluate the supplier from a technical perspective.
- Contracts managers within the Chief Mechanical Engineer's department are responsible for monitoring the ongoing performance of suppliers of repairable items and this may include auditing.

4.15.0.3 Parts received are registered on SAP. When withdrawn from stores, the person concerned books the date, the part's code and the vehicle to which it is being fitted. Issue of components is recorded in a way, which enables the system to automatically create an order when stock is below a certain level.

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| **Observation 12** | **The ongoing revision of the Chief Mechanical Engineer's Safety Standard 8 relating to procurement should clarify the requirements for approving suppliers from a technical perspective.** |

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| **Recommendation 12** | **The confusion as to the status of the standards relating to procurement should be resolved as reference to hard copies indicates that CME Safety Standard 8 (ME/DS/08) is at version 2 and effective as of January 2003 whereas the intranet shows the departmental standard to be in draft. The intranet should reference the live versions of each standard as a priority and, as a second priority, advise which ones are being revised.** |

## 4.16 Internal audit

4.16.0.1 Arrangements for internal audit have been reviewed within the Chief Mechanical Engineer's department. It has been verified by reference to documentation applicable to the bogie shop that managers and supervisors are conducting planned general inspections.

4.16.0.2 The Safety and Quality Manager's team then undertake audits every month on one shop as evidenced in the documentation presented to the lead auditors on October 26th, 2007. Audit records from a folder entitled 'CME Workshop Audits 2007/2008' were seen, covering audits of various locations. Each report viewed included clear identification of recommendations, responsibilities, timescales and status. Colour coding indicated those of significance and these are reviewed with the Chief Mechanical Engineer regularly.

4.16.0.3 The audit was unable to verify that technical audits or independent checks of depot level maintenance are carried out as routine. Introduction of a structured competence assessment programme will facilitate this. Also, the recent introduction of Fleet Technical Support at depot level will enable spot checks to be conducted on the day shift although there is no formality to this. It was stated that workload on nights currently precludes out of hours checks.

4.16.0.4 Subsequently, although no extant audit programme has been identified, the audit team has been provided with evidence that the following audits have been undertaken:

- Report on a locomotive audit conducted by consultants ESG, dated August 2007.
- A remit dated October 2nd, 2007, for a further four audits to be conducted at the depots.
- Copy of internal audits carried out in 2005: 0352, 0349, 0348, 0347, 0346, 0345, 0344, 0343, 0341, 0340 and 0339.

4.16.0.5 Whilst it has not been possible to review these, they verify that the Technical Manager has resumed an active role in audit; significantly one that involves independent parties.

4.16.0.6 Currently there is a lot of reliance on individual systems that are kept and managed by individuals and to which access is difficult to get to when those people are not present. Whilst on the basis of this audit there does not appear to be anything wrong with the systems themselves, this could be a significant problem if people suddenly become unavailable. Common audit processes and systems would improve the efficiency of the activity through better record inputting, retrieval and analysis, ultimately leading to improved quality of service.

| Recommendation 13 | A standardised approach to technical audit should be developed and adopted by the Chief Mechanical Engineer's department. |
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4.16.0.7 In so far as occupational safety inspections are concerned it has been verified that the "Loss Control/Safety Monitoring Inspection Checklist'" (specimen examined dated 31 August 2007) is utilised for safety inspections at Drogheda depot. These are conducted jointly by a manager and a staff safety representative. A copy of the completed checklist is forwarded to the department's Safety & Quality Manager.

## 4.17 Management of maintenance and overhaul

4.17.0.1 In the Chief Mechanical Engineer's department the audit has verified that maintenance and overhaul is conducted against exam sheets, which are available on the department's intranet. These call up a series of Fleet Instructions, Motive Power Instructions (either setting new requirements or capturing the requirements from the original equipment manufacturer), job knowledge and the procedures laid down by the original equipment manager in their manuals. Fleet Technical Support has access to these manuals and they were seen for Class 26000, 27000, 28000 and 29000. These documents are no longer controlled as they were supplied at the time of build.

4.17.0.2 Various exam sheets were seen including '29000 DMU "weekly" team exam' sheet, reference number 09/ME/TS/ES/2900/WT. The frequency of the exams is set by the Technical Manager at Inchicore Works and is generally specified in the exam sheets, however that is not the case for all exam sheets, and the term 'weekly' can be misleading as some exams are in practice required once every other week. It should also be noted that the review date on the Class 8000 exam documentation was five years ago.

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| **Observation 13** | **Rolling stock exam frequencies should be clearly specified in suitable documentation. If this is to be the exam sheet then all sheets should make the frequency clear. The content of exam sheets should also be reviewed before the specified review date.** |

4.17.0.3 Given that the class 29000 units were originally on a weekly exam (but this was extended to two weeks by the Technical Manager in May 2007), verification by way of the underpinning risk assessment was requested. Oral evidence was obtained that the risk assessment had been conducted but it was not possible to physically verify this.

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| **Recommendation 14** | **Records of the logic underpinning engineering change need to be controlled and readily accessible to relevant staff.** |

4.17.0.4 The Chief Mechanical Engineer's exam planning spreadsheet was reviewed verifying that units are receiving the maintenance at the specified frequency. Where units were recorded as overdue it is a function of them receiving maintenance at satellite depots and that this will be shown when the spreadsheet is updated each week. Verification that this process is working was obtained by reference to the previous week's report from Limerick. Verification was also obtained that a heavy maintenance plan for multiple units based on the frequencies specified by the Technical Manager is in place. However, from the records reviewed, it was not possible to verify whether the units are being overhauled within the required periods. However it does evidence that a system is in place to manage this.

## 4.18 Fires on class 29000 DMU engines

4.18.0.1 SAP is used to record maintenance of rolling stock. However when audited the system at Drogheda depot was running sufficiently slow to the extent that it was a barrier to the real time utilisation of the system.

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| **Observation 14** | **The Chief Mechanical Engineer should consider improving the speed of SAP response if this is a generic issue.** |

4.18.0.2 SAP was interrogated to try to identify a list of engine fires however this was not possible. Specifically, it proved difficult to find information pertaining to failures in service at Drogheda.

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| **Observation 15** | **If information concerning train fires is contained within SAP, further training of users should be considered to facilitate access to this information. Alternatively it may be appropriate for the Chief Mechanical Engineer to consider another system that is capable of containing such information, for instance the DRACAS system employed at Fairview depot.** |

4.18.0.3 The letter from Iarnród Éireann to the Railway Safety Commission dated 16 March

2007 regarding engine fires on the Class 29000 DMU fleet was used as the basis of audit. This letter identifies five factors and the action taken to address these issues. It was clear that members of the maintenance staff at Drogheda are familiar with the issues and it was verified in one instance that one of the maintenance staff could identify each of the affected areas to the auditor without hesitation and appeared knowledgeable about the engine components.

4.18.0.4 Each category was discussed in turn:

- Fractured flame start fuel pipe: a modification was done by the original equipment manufacturer (CAF) on the instruction of the project team at Inchicore. This was verified by the maintenance staff when showing the auditor the relevant equipment, although access to the engine made it impossible to verify that the modification had been done.
- Turbo lube oil return pipe gasket: The survey referred to in the letter had been conducted and a copy of the instruction and the inspection record, which showed that the check had been completed was verified. The instruction was in the old format and did not carry any reference or issue numbers, however this problem has now been addressed by the latest format evidenced by Fleet Instruction DH/FI/056 '2800 Door Micro Switch Checks'. The letter also refers to a briefing of maintenance staff and it was stated that both South Coast Diesel (the engine contractor permanently on-site at Drogheda) and Iarnród Éireann staff were briefed, however it was not possible to evidence this as it predated Fleet Technical Support staff involvement on the depot.
- Fuel pump fuel delivery valve: Action proposed by MAN was to upgrade the valve. It can be confirmed that this work is being done by the original equipment manufacturer and that this is monitored by the project team at Inchicore. Three units were stated to be awaiting this modification. Briefing of the maintenance personnel at Drogheda could not be verified as it predated Fleet Technical Support involvement on the depot.
- Turbo oil feed pipe: Confirmation has been secured that the 'weekly' maintenance check had been amended and can be referenced to weekly check item M9.91 "ensure that all engine oil pipes are secure with brackets and clips".
- Injector fuel pipe: Motive Power Instruction No. 204 'Securing of constant torque clips on 29000 DMU Turbo Hoses' evidences the revised maintenance and modification conducted to mitigate this problem. The sign-off sheet, which showed that the fleet check had been completed, was presented and cross-referenced to item M9.92 on the 'weekly' exam sheet.

4.18.0.5 Fleet Instruction DH/FI/033 "29000 main engine starter wiring checks" which had recently been issued in response to an engine fire caused by battery positive supply cable to the starter motor coming into contact with the underframe engine guard is also relevant and indicates continuing vigilance in the area of train fires. Indeed, it appears that Drogheda depot has responded in a robust manner to this problem.

## 4.19 Drivers' door interlock light

4.19.0.1 The problem whereby the blue interlock light had been lost on a class 28000 was traced to a fault on the door interlock switch where a loose wire was found. It should be noted that the system failed safe because the light extinguished and the door did not open. Although problems of this nature have potential to be a safety issue under specific conditions, this instance was more a performance issue than a safety issue. Fleet Technical Support have issued a Fleet Instruction DH/FI/056 "2800 Door Micro Switch Checks" which was verified along with the sign-off sheet confirming that approximately two thirds of the fleet had been checked.

## 4.20 Inspection and adjustment of EMU pantographs

4.20.0.1 Maintenance of pantographs is conducted to the standards set by the Technical Manager at Inchicore, which are available on the departmental intranet.

4.20.0.2 Two major incidents involving pantographs have recently been investigated as evidenced by the investigation reports as follows:

- July 30th, 2007, unit 8525 at Fairview yard: here the pantograph appeared to get caught above the contact wire on the converging main line as a result of a combination of vehicle speed and contact wire tension differentials (although the unit was not over-speeding). The contact wire was repaired before the latter could be demonstrated and it was said that a permanent speed restriction of 15kph was put in place of the 30kph previously in force.
- August 10th, 2007, unit 8122 at Connolly: evidence clearly points to an obstruction hanging from the catenary.

4.20.0.3 Because they were not available electronically because the relevant staff were unavailable, a manual sift of weekly defect reports from July 25th, 2007 was undertaken. This revealed three incidents initially attributed to the pantograph and three incidents attributed to the overhead line:

- Pantograph attributed: June 25th, 2007, unit 8116: pan valve leaking.; August 4th, 2007, unit 8119: line-breaker earth fault and therefore cause not attributable to pantograph; and, October 21st, 2007 unit 8328: pan valve replaced.
- OHLE attributed: July 30th, 2007, unit 8525: see above. August 14th, 2007, unit 8125: power surge on depot; and, October 15th, 2007, wire down: not attributed to a DART unit.

4.20.0.4 It is not clear why the August 10th, 2007 incident is not captured in this second list, but it may be due to erroneous manual sifting by the auditor.

| Recommendation 15 | The Chief Mechanical Engineer's departmental records should be readily accessible to relevant staff and availability should not be dependent on the presence of a single staff member. |
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4.20.0.5 On the basis of the level of investigation possible within this partial audit, it appears

that Fairview have responded robustly to the incidents. During the investigation, depot level fleet technical services were able to demonstrate the incident recording that they have recently introduced, which provides a useful tool for trend analysis. A particularly powerful feature is the ability to drill down to investigation reports using hyperlinks.

**Observation 16** **Hyperlinking of incident records has the potential for wider application across the company.**

## 4.21 Overhaul of wheelsets

4.21.0.1 The standards to which wheelsets are overhauled within the wheel-shop at Inchicore are provided by the Technical Manager, and generally comprise of standards provided by the original equipment manufacturer which are currently in the process of being broken down to produce work instructions Two examples verified were manufacturing instruction number 6 “Locking Mechanism on Nut of Input/Output Shaft Reduction Gearbox 2600 DMU” reference 01/ME/TS/MI/06, and draft manufacturing instruction number 12 “pumping of wheel” reference 01/ME/TS/MI/12). It is understood that these work instructions will be available on the department’s intranet facility. Commendably, a risk based approach is being taken to the production of work instructions; as opposed to doing one fleet at a time, they have identified the highest risk activities and are implementing these across all fleets as a priority.

**Recommendation 16** **The process of documenting all maintenance and overhaul work as a series of instructions and capturing it on the intranet should be progressed as a priority.**

4.21.0.2 Hard copies of three other standards were verified: BS5892 Pt 6 1980 “Railway Rolling Stock Material”, Rail Safety and Standards Board Railway Group Standard GM/RT2466 “Railway Wheelsets”, and it's associated Approved Code of Practice GM/RC2566 “Recommendations for Railway Wheelsets”. The British Standard tabled was out of date; the latest version of BS5892 Pt 6 was last reissued in 1992. Subsequent evidence submitted by the Chief Mechanical Engineer’s department on November 5th, 2007 refers to the correct version of this standard (see below).

**Recommendation 17** **Standards and other documentation that are used for safety critical applications should be controlled and up-to-date. Consideration should be given to making them all available through the intranet facility. The appointment of a Document Controller within the Chief Mechanical Engineer’s department at Inchicore Works will facilitate this.**

4.21.0.3 Staff who overhaul wheelsets work to a wheelset [quality] control sheet which is attached to each wheelset going through the facility and is completed for each axle number. The design is specific to each particular type of axle; examples were seen for a 28000 trailer vehicle wheelset and a Mark 3 wheelset. A completed example was

provided for axle serial number 205T, including a certificate relating to Ultrasonic Axle Examination (UAT) and Magnetic Particle Inspection (MPI), which are both bought in services. Two points to note are:

- The 'surface finish maximum allowance' has been crossed out indicating either that it is not applicable or that it has not been achieved.
- The boxes for activities in 11 three to 16 have not been completed and seem to duplicate some of the later boxes. Either the design of the sheet needs review or its application requires training.

**Observation 17** **The Chief Mechanical Engineer should review the design of the wheelset [quality] control sheets and provide training to ensure that all necessary evidence and guidance is provided on completed sheets.**

4.21.0.4 A tour was conducted of the overhaul facility and the following was noted:

- Bearings are overhauled by the original equipment manufacturer.
- Wheels are removed from the axle using oil injection. A hand pump is used because it has been found to provide better control.
- Wheelseats are reground on the axle and a new CNC grinding machine is being purchased to perform this function more effectively. It is intended that the control system will be compatible with the wheel boring machine so that the two can communicate to reduce the risk of wheelseat and wheel bore incompatibility. The required wheelseat diameters are made available to staff on a datasheet posted by the machine. This was not controlled and as a safety critical document should be, recommendation 17 above refers. It is intended that the sheet will be made available on the intranet and made available at each workstation. Once they have been ground the axles are stored on frames, quite often supported by the wheelsets themselves on a surface that has potential to damage the good finish that had been achieved by grinding (figure 3 refers). Although there is some appropriate protection on the frames, this is variable and could be improved. It was explained that this issue had been identified and was being progressed by the facility.
- The procedure by which wheels are fitted to axles was explained and witnessed for the first wheel to be mounted to axle 141T. The wheels are press fitted as opposed to shrink fitted. The pressure and displacement is recorded by the machine and wheels are required to meet the requirements specified in the activities 26 and 27 of the wheelset control sheet, although load limits are not specified on the all controls sheets, e.g. 2800 trailer vehicle wheelset control sheet. It was stated that if the pressure is below that required, then the wheelset is allowed to rest for 24 hours in quarantine and then put back on the machine for a back pressure test. Example printouts from the press for the axle witnessed and axle number 205T were supplied. The following should be noted about the printouts and the process:
  - The time and date settings on the press were wrong; the first wheel being pressed on to axle 141T was witnessed at 1215hrs on

October 31st, 2007 whereas the printout shows 1912 hrs on October 29th, 2007. It is understood that this has now been corrected although the machine was not on when it was revisited to verify this.

- The line which is believed to represent "travel" shows a great deal of noise and may be an indication that the instrumentation needs investigating.

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| **Observation 18** | **The plans in place at Inchicore works to introduce a new system for managing calibrated equipment are commendable and should be progressed as a priority.** |

- The line which is believed to represent 'pressure' does not generally increase 'gradually and smoothly' with the displacement of the wheel as required by BS5892 Pt 6 clause 5.2.2.4.
- The lubricant which was coated on the wheel bore and axle wheelseat was from an open can, for which the operator provided paperwork indicating that it was AAR approved wheel mount compound (BS5892 Pt 6 clause 5.2.2.1 recommends rape oil but does allow the purchaser to specify an alternative). The lubricant-can should be kept covered so as to prevent ingress of foreign debris.

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| **Observation 19** | **The can for the lubricant used in fitting wheels to axles should be kept covered so as to minimise the risk of foreign debris ingress.** |

- Where wheels do not achieve the required pressure, this is indicative of wrong lubricant or an incorrect interference fit between axle and wheel. On the basis that this is a problem not seen with all wheelsets, this points to a problem with the interference fit. Recognised practice in such cases would be to dismantle the assembly and check the component dimensions, not allow the wheelset to rest for 24 hours and then conduct a back pressure test. Wheelsets with inadequate interference fits run the risk of wheels moving on their axles, representing a significant safety risk.

4.21.0.5 Subsequent to the inspection referred to above, further evidence was submitted electronically on November 5th, 2007, containing Manufacturing Instruction 09/ME/TS/MI/09 Version 2, April 2007 which confirms the practice of conducting a back pressure test if the "pump on pressures" are not achieved.

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| **Recommendation 18** | **The Chief Mechanical Engineer should initiate a review of the wheelset overhaul process as a priority, in light of the action currently being reported to be taken following wheel press on pressures not being met. This should be conducted by a wheelset expert.** |

4.21.0.6 Staff members employed in the wheel-shop are currently using their own measuring equipment, which they keep in their lockers. Team leaders check that the equipment is calibrated and staff members are instructed to do so, however the managers have recognised that this system is not as well-controlled as it needs to be. To this end the facility is introducing a new system whereby staff will book out equipment as and when it is required leaving an audit trail using bar codes, which identify each member of staff. The system will also be used for personal protective equipment as well as some consumables. The equipment that has been introduced to enable this was seen and demonstrated. Observation 18 above refers.

4.21.0.7 The station for calibrating torque wrenches has only recently been introduced. There was no evidence of calibration at the time of the audit, but this might be because it is only a new introduction.

4.21.0.8 Competence is currently achieved by job experience in an environment where new tradesmen are mentored by the time-served. The Chief Mechanical Engineer's department has recognised the need to move to a more formal approach where competence can be demonstrated through formal training and one member of staff is currently doing a formal City and Guilds training qualification. This will have the added benefit of making the facility less dependent on the Original Equipment Manufacturer ("OEM") for training. Please refer to the section of this report addressing competence management.

4.21.0.9 As well as the improvements being sought to competence, the facility is in a considerable state of positive change in other areas. Manufacturing is moving to a cell-based approach and external coaching expertise on lean manufacturing techniques is being sought. Regular audits of the machine shop are being conducted against the five S's (Sort, Set limits and locations, Shine, Standardise and Sustain). Audit forms dated October 2nd, 2007 and October 27th, 2007 were seen and evidence this activity along with action plans detailing responsibilities for closure.

**Observation 20 The Inchicore machine shop Five S audit form is to be commended as a simple and quick means of auditing a facility against the Five S's. Consideration should be given to providing a column to indicate a timescale or priority against the actions at the end of the sheet.**

## 4.22 Defect reporting

4.22.0.1 Principally drivers would telephone defect reports through to the CTC who in turn telephone the relevant depot's Duty Manager. Then, the depot would talk to the driver to provide advice on how to overcome the fault. If more technical advice is required then the Duty Manager will talk to Fleet Technical Support. The Duty Manager would then report the fault in a daily report and it would be placed on the "war room" board for investigation the next time the unit comes in to the depot. The Duty Manager's daily logs are sent to the Depot Manager and fleet technical support. These are then registered in SAP along with items from the daily reports from the CTC, creating a job card for the units in question. A SAP printout is placed in the war room pigeonhole for

the relevant unit to be picked up when it is next seen. This approach has been evidenced.

4.22.0.2 It was stated that drivers' defect reporting books have recently been fitted to the DART EMU fleet. The auditor was advised that all driving cabs on rolling stock managed by the Chief Mechanical Engineer would eventually have them. In so far as the DART EMU fleet is concerned it was explained that the books were checked when the unit comes on depot (for exam or otherwise) and then again when train preparation was undertaken by the Operations department. Defect books are said to be used to deal with the less urgent defects that do not get reported to the depot via the CTC. There are two sheets for each defect; the white one, which the driver takes for his records, and the blue one, which remains in the book. Defects tend to rectified by the fitters when they find the fault; there is not necessarily any record in the depot systems.

**Observation 21 Rolling stock defect books add value and should contain three pages; one for the driver, one for the depot to trigger maintenance systems and ensure work is recorded, and one to be retained in the book.**

4.22.0.3 Vehicle 8123 was checked and no defect book was found. Unit 8603 was checked and the defect book was found to contain two defect reports (1801 and 1802). The reverse side of the sheets is reserved for feedback to indicate that the defect has been attended to. There was no evidence of this for both of the defects contained in the book.

**Observation 22 The processes that govern the use of rolling stock defect books need to be briefed out in both the Chief Mechanical Engineer's and Operations departments.**

## 4.23 Technical Specifications for Interoperability (TSIs)

4.23.0.1 The Chief Mechanical Engineer's department stated that they do not consider the High Speed TSIs to apply in Ireland and was generally silent on the status of those relating to conventional interoperability.

4.23.0.2 Prior to the Railway Safety Commission taking on a regulatory role, Iarnród Éireann was essentially "self-regulating" and has stated that it usually selected the most onerous standard from a selection of British Railway Group Standards, UIC and other international standards. This practice of selecting the most appropriate standard continues. This partial audit has not explored the process by which, in particular circumstances, they determine which standard or TSI is identified as most appropriate.

4.23.0.3 Iarnród Éireann is aware that TSIs will become mandatory once implemented in Irish law. However, within the Chief Mechanical Engineer's department they are not aware that this was yet the case and did not believe that the High Speed TSI would apply in any case. They are therefore continuing to treat all TSIs as optional. This approach extends to the Noise TSI as it is not yet considered to be a legal obligation.

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| **Observation 23** | **Iarnród Éireann should clarify the legal status of the Technical Specifications for Interoperability in Ireland and develop plans to respond to those applicable to their infrastructure and train operations.** |

## 4.24 Track maintenance

4.24.0.1 The audit of the application of maintenance standards was tailored to the level of the interviewee. All standards considered are approved and have been issued down to Permanent Way Inspector level. The content of the standards was reviewed and found to be comprehensive.

4.24.0.2 Two of the interviewees made reference to an “orange book” which they said contained standards. A Permanent Way Inspector said he used this although he knew about the “new” standards. On further investigation it was found that the “Orange book” is the Civil Engineering Department Maintenance of Way Technical Information sheets, Part 1 and 2, issued in 1993. The book is considered to be an engineering manual and technical handbook.

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| **Recommendation 19** | **The Chief Civil Engineer (designate) should clarify the status of the “Orange book” and brief staff members concerned as to when this rather than the applicable standard should be the reference document.** |

4.24.0.3 Specific issues relating to the application of standards reviewed during the course of this audit are:

- I-PWY-1107 Track and Structures Inspection Requirements – No issues.
- Form L38/14 – Patrolmans Report - Noted faults are reviewed by the Permanent Way Inspector and confirmed as either urgent or non urgent. Urgent faults are actioned, non urgent appear to be disregarded. As there is no training course or formal competence assessment for patrolman the assessment of their competence is based solely on the Permanent Way Inspector’s knowledge and experience of the person in question. It appears that patrolmen reports are vetted on the basis of this informal assessment of their competence. A two-month “look ahead” for heavy maintenance is maintained and access to the track arranged accordingly. This plan can and is amended as other more important work emerges.

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| **Recommendation 20** | **Iarnród Éireann should develop their competence management system to ensure that the competence of patrolmen is managed systematically and consistently. Informal initial and on-going assessment of competence should be superseded by the application of objective criteria applied by staff members holding a recognised competence assessment qualification.** |

- I-PWY-1108 Track Maintenance Requirements – No issues
- I-PWY-1159 The Inspection, Maintenance and Assessment of the condition of Points (Pointcare) – Infrastructure Asset Management System contains the Switch and crossing assets. The majority of these assets have condition information in the system. Pointcare information will be put into IAMS with a target of 170 points by end of 2007, 700 by the end of 2008, inspected and uploaded into IAMS, which equates to all in the Dublin Divisional Engineer's area. Known problem areas have been prioritised. There is also intent to undertake inspections jointly with the applicable signal engineers.
- I-PWY-1162 Requirements for the weld repair of points and crossings – No issues.
- I-PWY-1323 Rail Test Work Instructions (Non-Ultrasonic) - This is undertaken by the ultrasonic team. It is noted that the ultra-sonic testing testers are certified by ASNDT (American Society for Non Destructive Testing)

4.24.0.4 There is a formal assessment of the Track Safety Coordinators (TSC) on-site after certification issued on completion of training. There is a management issue in some areas with TSCs not undertaking “work” along with TSC duties. This suggests that the intent of AD Little recommendation is, as yet, not fully satisfied.

4.24.0.5 The issue is with ‘Protection staff’ in total and not just lookouts. There are issues regarding labour laws in the respect of who can be trained and used to provide protection. It has been stated that this is now the subject of deliberation in the Labour Court.

4.24.0.6 The Divisional Engineer has to provide protection for his own work, new works, third party work, signalling and outside parties. The main problems occur when track protection is requested by others especially third parties. Providing protection takes men from the gangs sometimes making it difficult to resource core maintenance work.

4.24.0.7 The Divisional Signalling staff have a work around for some activities they undertake (e.g. when undertaking point inspections) utilising Emergency Control Panels (ECP). This methodology has been agreed and approved by Operations and conforms to the Rule Book. This removes the need to have other track protection staff available.

4.24.0.8 To date 21 departmental permanent way standards along with three pertaining to structures and a further five concerning buildings and facilities have been issued. There are a further ten to finalise, authorise and issue, all are currently in draft form. It is planned to have all required standards completed and issued by the end of 2008. They have been developed in a prioritised order. There are plans in place to review these standards periodically from 2008.

4.24.0.9 The Principal Engineer Track & Structures meeting held monthly with the Divisional Engineers, Production Manager and Chief Engineer (designate) in attendance discusses the standards before they are passed for authorisation. Standards are presented to the Infrastructure Safety Steering Group meeting for sign off and distribution. They are then passed to the Document Controller who uplifts it to the departmental intranet. E-mail notification is sent to all those requiring the standard. The Principal Track and Structures Engineer meets with the Divisional Engineers to brief

new and revised standards. The Divisional Engineer discusses new and revised standards with his staff. During the audit it was not possible to review the records of these briefings to verify that they are signed down.

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| **Recommendation 21** | **Records of those briefed should be available to line managers in order that they can ensure that all affected staff members are briefed on changes to standards and other matters pertaining to the safety of Iarnród Éireann's operation.** |

## 4.25 Structures

4.25.0.1 Within the bridge team there are currently no specific departmental technical standards applicable to their work. Currently their work is controlled by the original design drawings and specifications issued by the design team and, as appropriate by reference to Euro Norms and other external standards.

4.25.0.2 Within the facilities and buildings domain there are a number of departmental standards in existence. These are under the headings general, surveys and electrical. The general standards cover the organisation's duties and describe what they do. It was felt important to have a standard on surveys as this area is fundamental to their work, this standard is being redrafted to increase consistency in surveys across the whole of Iarnród Éireann. The electrical standards were written to provide clearer guidance to staff in this area who had received minimal training and development until recently. There are standards planned under the headings of buildings, other facilities, equipment and environment. It was not clear at this stage what the content or number of standards there will be. There is little evidence of an over-arching consideration of the need and quantity of standards required by the company in these areas.

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| **Observation 24** | **It is suggested that a review of existing external and internal standards is undertaken to identify what the Infrastructure department needs and to ensure consistency across Iarnród Éireann.** |

4.25.0.3 When new standards are issued these are briefed in and the briefings and attendance is recorded.

4.25.0.4 There is an issue for both the structures and buildings and facilities teams concerning the availability and, it is said, on occasion the quality of lookout resources. It was evident that when lookouts are requested from the Divisional Engineers' departments they are not always supplied and from the perspective of the "client" the quality of staff is sometimes suspect. This has led to the postponement of work and raises a possibility that work proceeds without protection.

| Recommendation 22 | The concerns raised regarding the availability and competence of lookouts to other than infrastructure maintenance should be investigated and remedial action initiated as appropriate. |
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4.25.0.5 Within the bridge section they have their own track safety controllers and no issues have been identified. In the facilities and buildings domain they source track safety co-ordinators from the divisional engineers but this arrangement appears to work more successfully than is the case for lookouts.

4.25.0.6 External resources are bought in by both of these areas of the organisation. Whenever services and equipment are purchased this is always managed through procurement. On small elements of labour, plant etc a supplier from the approved list managed by Achilles is used. The procedure for gaining access to the list includes review of safety management systems and therefore these resources should have appropriate safety arrangements in place. When larger elements of work are bought this is generally under a specific contract against which suppliers will competitively tender and be measured on price, safety and quality parameters with the highest ranking supplier being selected. At present there is no formal feedback loop to Procurement on safety (and other) performance and it is suggested this be established to better control supplier quality.

| Observation 25 | A feedback loop to procurement on safety performance should be created and used to inform the future selection of suppliers. |
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4.25.0.7 There is currently no formal handover / handback procedure in place for the transfer of new elements of infrastructure from new works to the facilities and buildings maintenance teams. It was stated that this is being developed.

4.25.0.8 It has been established that first line reports to the Chief Civil Engineer (designate) have job descriptions and aligned safety responsibility statements. In so far as buildings and facilities are concerned it has been established that action is on-going to have these in place for all managers and supervisors by the end of the year.

4.25.0.9 Current staffing levels are based on the historic organisation size reduced by those that have since left. There is currently a recruitment embargo so it is not possible to fill posts when people leave. Reorganisation therefore takes place to best use the remaining resources supplemented, where required, by using contract staff over fairly long periods.

| Recommendation 23 | The approach of reorganising staff to make the best use of available resources within the organisation's overall budget constraints is well understood but it is recommended that a strategic review of forward demands on the organisation is undertaken to ensure that resources are aligned to future needs. |
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4.25.0.10 Of the two areas of the organisation audited the facilities and buildings area had been audited in Cork once by the Chief Safety and Security Officer's organisation. It was stated that this audit was satisfactory with a small number of items raised, which were closed out – this has not been verified.

4.25.0.11 It is of note that within the bridge team it had been established that a high level of driving was being undertaken in vans. To manage this risk advanced road vehicle driver training was arranged.

## 4.26 Signal, Electrical and Telecommunications (SET)

4.26.0.1 The audit concerning application of the maintenance standards was tailored to the level of the interviewee. All these are approved standards and have been issued to all staff via the Infrastructure web site. In practice, not all of the staff has regular access to this and so A5 booklets are being produced for staff on the ground relevant to their geography. These will be a controlled issue by Technical Support in the divisional offices. The content of the maintenance standards was found to be comprehensive and generally derived from operation and maintenance manuals.

4.26.0.2 The SET function will be directed by a framework of standards that contains a total of 304 documents. To date 123 of these have been issued with 181 outstanding. Focus has been on setting the high-level principles and the testing and maintenance standards. Progress is slow with current rate of production being only one standard per month. Standards are produce by the Principal Engineer Signal and Power who has two engineers and a draughtsmen in his organisation. There is no evidence of project planning for internal projects such as this. No programme of completion is available and therefore, it is evident that significant further work is needed to satisfy the intent of recommendation SMS8 arising within the AD Little report of July 2006.

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| **Recommendation 24** | **The Chief Signal, Electrical and Telecommunications Engineer should prepare a project plan to identify work scope, schedule, resource and cost implications and provide a basis for ongoing measurement of progress agreed with the Chief Executive.** |

4.26.0.3 Specific issues identified in relation to the standards examined are:

- I-SIG-2451 Track maintenance procedure for Westinghouse Style 63 Point machines. It is noted that access to points is agreed in advance with the Operations department and "green zone" protection arranged. All point assets are now logged in IAMS and maintenance inspections are scheduled and recorded on the frequency laid down in the standard though the system does not record the type of schedule. This will be changed in the future to record specific schedules. Job cards for the inspections are signed off by the inspector and verified and logged on the system by the supervisor.
- I-SIG-2464 Maintenance procedures for Axle Counters - This standard is derived from operation and maintenance manuals. Axle counters are not recorded in IAMS yet and no evidence was available of inspections. This is a

new standard and has not been briefed down to staff yet. It is planned that axle counters will be in IAMS by the year-end and systematic maintenance regimes will be in place. The nature of this equipment with no moving parts does not lend itself to intrusive maintenance with most maintenance activities being inspection and measurement only. Visual inspections of axle counter equipment are made on a regular basis currently. Given this, some progress towards discharging AD Little recommendation ST4 is being made

- I-SIG-2002 Interface Management - All projects are governed by design practices and undertaken by competent staff. Prior to the commissioning of any new project, a new works assessment is completed and certificated in line with Company Safety Standard 6, which describes the project and its interfaces. This document includes a comprehensive risk assessment, which records how the design of the project has dealt with key risks including interfaces, operational and technical compliance issues. Time was not available during the audit to review the design inputs.
- I-SIG-2331 Changes to CTC - This standard was introduced in 2005. It was reported there have been no changes to CTC in that time.
- I-SIG-2006 System failure reporting investigating monitoring - This standard was generally adhered to with the exception that there is no obvious categorisation of faults. There is no method written as to how the risk is categorised. It is subjective judgement. All wrong side failures are deemed high risk category. The decision is made by personnel with many years experience.

| Recommendation 25 | Consideration should be given to providing formal guidance, direction and training on the categorisation of faults arising within the SET domain. |
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4.26.0.4 Signalmen use the Daily Incident Reports to capture faults. The line management of the signallers and supervisors and relevant managers in SET all get copies of this daily. The Divisional Engineers collate fault reports in a central database, they are reported by equipment type to the Lead Divisional S&E Engineer on a weekly basis. Investigation is undertaken at local level with support from the Principal Engineer S&P as required. Root causes are identified and reported in the periodic performance report. The verification that failures are captured correctly starts with the line management staff talking to their supervisors. Additional to this, discussions take place between the Principal Engineer and line management on the issues when the performance reports are being issued. The failures are again discussed at SET Management Meetings and at the SET Advisory Group.

4.26.0.5 The Chief Engineer (SET) (designate) reviews trends in faults on a monthly basis as part of his management meeting and information is reported to the Board's SET Advisory Group in periodic reports.

4.26.0.6 The IAMS system has a scoring field that is filled in by front line managers. Scores are attributed to design, condition and deterioration. The scoring is fed into the company risk model and it is the output of this that is used to determine what projects are put

forward under the Safety Investment Plan.

4.26.0.7 Job descriptions and safety responsibility statements exist down to, but excluding, supervisors and inspectors for roles within the organisation described in the currently accepted Railway Safety Case.

4.26.0.8 Determination of competence is a line management responsibility in the context of technical standards and guidance set by the Principal Engineer. All staff members are trained on appropriate training courses, which are followed up by a workplace assessment. Records are kept by the Human Resources department.

4.26.0.9 Staffing levels are perceived by those interviewed to be too low for the work they are to undertake. Planned maintenance is generally completed in a 15 month cycle rather than a 12 month cycle. However, examination of IAMS data in the Cork area did not back up this assertion.

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| **Recommendation 26** | **The current SET maintenance staffing levels should be reviewed and if they are leading to extended maintenance cycles the risks associated with this should be assessed and if necessary staffing levels should be increased.** |

4.26.0.10 The issue of lone working without lookouts for SET staff remains unchanged after five years since management attention was first devoted to introducing an acceptable practice for unplanned maintenance and faulting. The SET department has a draft proposal to address the situation that is in the process of review and approval. Significantly, AD Little's recommendation ST1 of July 2006 is not yet discharged. Planned maintenance is generally undertaken in green zones and lone working is not an issue.

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| **Recommendation 27** | **As a matter of urgency alternative arrangements to secure the proper protection of lone SET staff members working on unplanned maintenance and faulting should be introduced.** |

4.26.0.11 A concern that there is only one electrification engineer in Iarnród Éireann has been identified. Currently, the arrangement in place is that the nominated deputy to the electrification engineer is the Suburban Engineer responsible for DART. This situation needs to be reviewed as electrification extends through projects such as that impacting on the Maynooth Line.

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| **Recommendation 28** | **The workload relating to electrification should be reviewed to determine if current staffing is adequate and that the deputising arrangements are in practice robust. If the workload justifies, additional competent staff should be recruited.** |

**Observation 26 Extension of electrification will necessitate an increase in staff competent in electric traction current systems.**

## 4.27 Competence management

4.27.0.1 This element of the report adopts the Health and Safety Executive (HSE) guidance from Great Britain that:

- A competence management system (CMS) should apply to all staff, employed and contracted, carrying out work which has a safety dimension including front line staff, support staff such as trainers and work planners and managers.
- A CMS should be risk based to ensure that competence management processes are proportionate to the potential risks created by poor performance - processes include recruitment and selection, training and development, assessment and appraisal, accreditation and control of work performance.

4.27.0.2 Thus, Iarnród Éireann has two areas of responsibility for competence management:

- Ensuring the competence of its own staff.
- Ensuring that contractors and sub-contractors, which carry out work on its behalf, have effective competence management arrangements in place.

4.27.0.3 Iarnród Éireann has, in line with the statutory requirement, identified and defined the following safety critical tasks in Railway Safety Standard 67 – "Training, Competence and Fitness":

- Driving a train or in any other way controlling or affecting the movement of the train.
- Controlling, affecting or managing the movement of persons on a train, on a platform, across a level crossing, or boarding or alighting from a train.
- Work in a maintenance capacity or as a supervisor of, or lookout for, persons working in such a capacity for the installation, maintenance, repair, alteration or inspection of railway infrastructure or trains, or for the coupling or uncoupling of trains, or for performing a pre-departure examination of trains.

4.27.0.4 With regard to the competence of Iarnród Éireann's own staff, we consider this must include the competence of relevant staff to evaluate the competence management arrangements of contractors which, in turn, assumes that effective support systems are in place to support and guide staff making such evaluations.

4.27.0.5 The following assessment criteria were used as the basis for evidence gathering and interviews (for full details see Appendix B). These criteria have been derived from guidance on good industry practice published by the Office of Rail Regulation and others in Great Britain.

| Ref | Criteria |
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| C1 | Competence management arrangements are well supported across the business. |
| C2 | Recruitment is carried out in a timely and effective manner. |
| C3 | Training and development is provided to staff to ensure they are performing to standard. |
| C4 | Competence assessments and performance reviews are carried out regularly and in an effective manner. |
| C5 | Safety critical work activities and plant operations are always carried out in a competent manner. |
| C6 | Work performance is managed and controlled by ensuring that only competent staff or persons working under competent supervision carry out safety critical work activities and plant operations. |
| C7 | The CMS is subject to periodic audit and review. |

4.27.0.6 In so far as C1- “Competence management arrangements are well supported across the business” is concerned the company has a documented safety management system. Its ‘Policy and Principles for Training, Competence and Fitness’ focuses on three areas;

- Selection
- Training
- Verification of competence

4.27.0.7 However, Iarnród Éireann does not have a complete or cohesive formal CMS in place that deals with competence at a strategic level. Competence is defined at a task level related to a job. The responsibility for the definition and assurance of competence has been deployed to each department. The identification of safety critical tasks has been deployed to heads of departments. How that process is carried out is down to individuals and individual departments.

4.27.0.8 There is no central database, which defines and maps the competence requirements of the company. The auditors have subsequently been advised that the Training Manager is developing a central database. The human resources (HR) and associated training functions also use their own definitions of competence and carry out their own assurance separately. Records of competence, training and assessment are kept in each department alongside those held by the training department and HR. There are no central arrangements relating to assessments and records of competence.

4.27.0.9 Although a number of elements of a CMS are in place and some of these are well developed, these elements are not joined together into an overall coherent, strategic and risk based system. The audit verified that the following good practices are in place:

- The mapping of the competences held by catering staff to other areas of the business in order to effectively redeploy surplus staff.
- In 2001 a decision was made to put in place a management development system to allow staff from within the organisation a route into management.

- o A culture change within the company that recognises that competence not seniority should be the basis for promotion.
- o Training needs analysis carried out annually.

Additionally, the audit established that in the late 90's competence profiling of safety critical roles was undertaken as a foundation for the system of recruitment and promotion of competent staff. Although not verified, it is understood that these profiles are subject to ongoing independent review. Thus, Iarnród Éireann have in place the ability to apply a first structured competence filter at the point of entry to employment and, subsequently on entry into new posts.

4.27.0.10 Further good practice is evident in the "professional" series of handbooks developed to address train driving, shunting and signalling.

4.27.0.11 The company has a positive attitude towards the management of competence but recruitment, training and assessment are not fully integrated. The review of staff competence is carried out at district level.

4.27.0.12 Next, considering C2 – "Recruitment is carried out in a timely and effective manner" job descriptions are defined. Recruitment is carried out against these. Iarnród Éireann emphasises the need to recruit people with both the required competence and attitude. The HR department works closely with the training department to ensure that competence gaps are identified and the appropriate training and support put in place for new or redeployed staff. Iarnród Éireann has a policy of recruitment and promotion from within where possible. Medical standards are in place where appropriate.

4.27.0.13 Turning to C3 – "Training and development is provided to staff to ensure they are performing to standard" it has been identified that a training needs analysis is carried out annually. A focus of this is refresher training required to meet licensing requirements and health and safety training.

4.27.0.14 Direct training of suppliers or sub contractors is occasionally carried out where a clear business need has been defined and it is cost effective.

4.27.0.15 Investment in training appears to be sufficient and the company are moving forward with plans to increase the quality of training of drivers with the installation and implementation of a simulator.

4.27.0.16 Technical training is often delivered by the function concerned. The scope of this audit did not include looking at this, however, the fact that there is no assessment being carried out in the Chief Mechanical Engineer's department (see below) suggests that any training taking place is not based on clearly defined competence requirements, which may have implications for both safety and cost.

4.27.0.17 In so far as C4 – "Competence assessments and performance reviews are carried out regularly and in an effective manner" is concerned, two areas of the business were looked at in terms of their competence management arrangements - driver training and rolling stock maintenance. Only one of these, that pertaining to train drivers had an effective assessment process in place

4.27.0.18 The competence requirements for drivers are defined. Iarnród Éireann has adopted NVQ level 3 for the training of drivers. As a result of this, the assessment process is

clearly defined and administered by the awarding body. The quality of this should be maintained by the external verification process. The competence of assessors to drive trains is maintained informally. No records are kept of the hours they spend driving and how they maintain their competence. This appears to have implications regarding the validity of the assessment and internal verification process as applied currently.

**Observation 27 The basis on which the competence of District Traction Executives is assessed should be reviewed and if necessary extended to cover their competency to drive trains.**

4.27.0.19 Certification and renewal of licenses is maintained within the district offices and appears to be effective. There is over-reliance on individual District Traction Executive's to maintain and monitor individual records of assessments and refresher training. There is no central maintenance of records.

4.27.0.20 There are plans in place to develop a competence assessment system in rolling stock maintenance but these are not complete. Assessors have been trained, but the criteria against which assessments will take place have not yet been defined. There is no clear time scale for when this will happen, but the size of the task suggests that it will be months rather than weeks. Once assessments begin the numbers that are required are likely to stretch the capacity of the current assessment team. In the meantime, no assessment of competence is taking place in Chief Mechanical Engineer.

4.27.0.21 Considering C5 – "Safety critical work activities and plant operations are always carried out in a competent manner". Train drivers appear to be well managed in terms of the monitoring of their competence. Processes are in place to deal with identified gaps in competence. Assessments are carried out regularly and drivers are closely monitored on return to duty after a sustained period of absence. Certification and renewals are closely monitored and maintained. Newly qualified drivers undertake a defined period of mentoring and monitoring. Assessments are carried out before competence certificates are re-issued.

4.27.0.22 There is no formal monitoring or assessment of safety critical work activities taking place in the Chief Mechanical Engineer's department. Staff have been trained on new systems that are being implemented but no assessment or evaluation of the effectiveness of this training has been carried out. This is particularly important in this department as much of the training relating to the maintenance of rolling stock, fixed plant and other systems is carried out by the suppliers. However, it should be noted that CME departmental safety standard 24, which covers competency assessment, is in the process of being drafted and a first draft was expected in November 2007, when it is scheduled for review. Subject to satisfactory review, approval is anticipated in December 2008. Initial drafting of the standard took place during a workshop held on October 23rd, 2007 with representatives from training, a V1 Competency Assessor, the company's internal audit unit and technical representatives. In parallel with the development of the standard, the V1 Competency Assessor is drawing up assessments and, as evidence of this work is in hand to build a team of six competency assessors all of whom are working towards V1 Competency Assessor

certification. Further indicators of progress are a draft “Railway Safety Critical Work Competency Indicator” and a draft ‘Competence Assessment Combined ‘A’ and ‘B’ Team Exam 22000 DMU’,

4.27.0.23 Moving to C6- “Work Performance is managed and controlled by ensuring that only competent staff or persons working under competent supervision carry out safety critical work activities and plant operations”. The management of staff competence and performance is not consistent across the organisation. It is dealt with at a local level within the different departments. Competences are not fully defined across all departments and where this has not been done assessment processes are absent. Action is taken to address poor performance when it is identified. Identification of poor performance is often after the event when an incident has occurred. Much of the current monitoring of individual competence is based on custom and practice and is not related to specific competence requirements. However, that of train drivers is managed in accordance with Railway Safety Standard 23.

4.27.0.24 Procurement has a process for evaluating the suitability of suppliers and sub contractors. Requirements of suppliers, concerning products and services and competence are clearly specified. Procurement is given the technical details of the services needed and approves a suitable supplier. There is no separate CMS for suppliers and sub contractors. Regulatory requirements are monitored i.e. the presence of a Personal Track Safety certificate before starting work. Technical skills are monitored on the job but it is unclear how the consistency of this is assured and whether records are kept as it is managed by individual managers and departments. The drug and alcohol policy was not fully implemented at the time of the audit.

4.27.0.25 Finally, turning to C7 – “The CMS is subject to periodic audit and review.” competence management arrangements are dealt with by a number of departments. An annual training needs analysis is carried out. An annual audit of compliance with Railway Safety Standard 67 is carried out (training, competence and fitness). The standard requires that it is audited every three years. Changes are approved by the Chief Safety and Security Officer following Safety Review Group considering the content.

4.27.0.26 In conclusion, Iarnród Éireann does not have a complete competence management policy or system but it does have a number of relevant processes and some good practices in place, namely:

- Job descriptions, which include performance requirements and measures of success, and associated safety responsibility statements although there is more work to do in some areas.
- Recruitment and selection processes.
- Personal development plans and appraisals for some staff.
- Training and development for all staff who need it.

4.27.0.27 However, these elements are not joined together in a coherent CMS and there is no evidence to suggest that it has a model of what a good CMS should look like. Strategic analysis of the effectiveness of these systems is not being managed and this has resulted in gaps and inconsistencies in all the activities relating to competence management. There is some good practice in place but it is not consistent across the

management of internal and external competence. For example, whilst Iarnród Éireann has an effective process for internal recruitment and selection, it does not have an equally good process for evaluating supplier and contractor arrangements in this area.

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| **Recommendation 29** | **Iarnród Éireann should review its competence management arrangements and develop a cohesive, company-wide and strategic capability within which an enhanced approach to assuring the competence of contractors' staff is adopted, individual records of competence are consistent and are readily accessible, assessment processes are consistent and competence requirements are defined in a manner that enables a risk based approach to training and assessment.** |

## 4.28 AD Little study of July 2006

4.28.0.1 This partial audit of Iarnród Éireann has not generally sought to explore progress in closing out the recommendations arising from the AD Little study of July 2006. However, a sample of the AD Little recommendations were selected and have been addressed in the body of the report. Specifically progress against recommendation SMS7 has been considered in section 4.3. Recommendation SMS8 is most significantly considered in section 4.26. Recommendation PW1 is considered in section 4.24 of this report. Section 4.26 covers recommendations ST1 and ST4.

4.28.0.2 On the basis of the above sample of recommendations it is evident that progress is being made albeit, in some cases, more slowly than is appropriate. It is suggested that the Railway Safety Commission requires Iarnród Éireann to formally review progress against each of the AD Little recommendations of July 2006 and submit a report to the Railway Safety Commission detailing the position reached as at November 1st, 2007.

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| **Recommendation 30** | **The Railway Safety Commission should require Iarnród Éireann to formally review progress against each of the AD Little recommendations of July 2006 and submit a report to the Railway Safety Commission detailing the position reached as at November 1st, 2007.** |

# 5. Summary of Observations and Recommendations

## 5.1 Observations Summary

Observation 1
The wide distribution of the Operations Safety Plan for 2007 constitutes good practice, as does the cascade approach followed by the General Manager Northern & East.

Observation 2
The required attendance of the Chief Safety & Security Officer at Operations Safety Steering Group should be formally reviewed.

Observation 3
Standardised reporting arrangements across the operations function would better enable internal benchmarking of safety performance and progress with delivery of safety plan objectives. The approach adopted in the North and East Area and the cascade to North district is the best practice identified in this audit.

Observation 4
Consideration should be given to the development of a corporate safety-briefing cascade from Safety Review Group and the wider adoption of common materials and approaches as evidenced in relation to drugs and alcohol. Similarly the Operations, Infrastructure and Mechanical Engineering Safety Steering Groups should consider better defining functional core briefing requirements.

Observation 5
As good practice, all formal documentation should carry a reference number, issue number and evidence of appropriate authorisation and control. (This issue has been recognised and the Chief Mechanical Engineer's department is gradually moving towards this for much of its documentation). Project description documents that capture risk assessments should be similarly treated.

Observation 6
It would be good practice for distribution of the company emergency plan "Red Book" to be controlled independently of the standard to which it relates.

Observation 7
There would be benefit in harmonising the arrangements for liaison with the emergency services and monitoring progress in order to identify those areas where remedial action is required.

Observation 8
The packs prepared for staff at Connolly likely to have to implement crowding controls at Connolly due to service perturbation constitute good practice for wider adoption.

Observation 9
The significant commitment to implementation of drugs and alcohol testing in accordance with the policy will be harnessed when line managers have clarity as to the start date of testing and the arrangements by which they secure testing on a random or for cause basis. *Post audit note: on November 13th, 2007 the Iarnród Éireann Chief Executive advised that testing had now been initiated.*

Observation 10
The next revision to Railway Safety Standard 64 should correct the page numbering of Railway Safety Standard 64.

Observation 11
Greater clarity of the standing of the mobile telephone protocol would be achieved if it were contained within the Rule Book.

Observation 12
The ongoing revision of the Chief Mechanical Engineer's Safety Standard 8 relating to procurement should clarify the requirements for approving suppliers from a technical perspective.

Observation 13
Rolling stock exam frequencies should be clearly specified in suitable documentation. If this is to be the exam sheet then all sheets should make the frequency clear. The content of exam sheets should also be reviewed before the specified review date.

Observation 14
The Chief Mechanical Engineer should consider improving the speed of SAP response if this is a generic issue.

Observation 15
If information concerning train fires is contained within SAP, further training of users should be considered to facilitate access to this information. Alternatively it may be appropriate for the Chief Mechanical Engineer to consider another system that is capable of containing such information, for instance the DRACAS system employed at Fairview depot

Observation 16
Hyperlinking of incident records has the potential for wider application across the company.

Observation 17
The Chief Mechanical Engineer should review the design of the wheelset [quality] control sheets and provide training to ensure that all necessary evidence and guidance is provided on completed sheets.

Observation 18

The plans in place at Inchicore works to introduce a new system for managing calibrated equipment are commendable and should be progressed as a priority.

Observation 19
The can for the lubricant used in fitting wheels to axles should be kept covered so as to minimise the risk of foreign debris ingress.

Observation 20
The Inchicore machine shop Five S audit form is to be commended as a simple and quick means of auditing a facility against the Five S's. Consideration should be given to providing a column to indicate a timescale or priority against the actions at the end of the sheet.

Observation 21
Rolling stock defect books add value and should contain three pages; one for the driver, one for the depot to trigger maintenance systems and ensure work is recorded, and one to be retained in the book.

Observation 22
The processes that govern the use of rolling stock defect books need to be briefed out in both the Chief Mechanical Engineer's and Operations departments.

Observation 23
Iarnród Éireann should clarify the legal status of the Technical Specifications for Interoperability in Ireland and develop plans to respond to those applicable to their infrastructure and train operations.

Observation 24
It is suggested that a review of existing external and internal standards is undertaken to identify what the Infrastructure department needs and to ensure consistency across Iarnród Éireann.

Observation 25
A feedback loop to procurement on safety performance should be created and used to inform the future selection of suppliers.

Observation 26
Extension of electrification will necessitate an increase in staff competent in electric traction current systems.

Observation 27
The basis on which the competence of District Traction Executives is assessed should be reviewed and if necessary extended to cover their competency to drive trains.

## 5.2 Recommendations Summary

Recommendation 1
Once the CME's departmental Safety Plan is introduced in 2008, Fleet Managers should have a means of implementing the plan within their specific responsibilities, either through generation of their own safety plans or equivalent Safety meetings.

Recommendation 2
The specification for minutes of safety meetings should be considered by Safety Review Group and promulgated throughout the company.

Recommendation 3
The Chief Safety & Security Officer should initiate a structured review of the process by which the three identified organisation changes are being progressed to identify lessons learned to date.

Recommendation 4
The Chief Mechanical Engineer's intranet should reference the live versions of each standard as a priority and, as a second priority, advise which standards are being revised.

Recommendation 5
Safety Review Group should review the progress in developing and implementing standards relating to engineering change, product approval and procurement to ensure that they are consistent and when properly applied capable of delivering statutory and internal approvals in a timely manner.

Recommendation 6
Consistent intermediate monitoring of fire safety equipment should be introduced at all stations.

Recommendation 7
There would be benefit in harmonising the arrangements for liaison with the emergency services and monitoring progress in order to identify those areas where remedial action is required.

Recommendation 8
A time-bound plan for the production and issue of operations manuals required to provide for complete coverage of the multiple unit fleet should be put in place.

Recommendation 9
Consideration should be given to a Railway Safety Standard, which sets out the arrangements for the booking on-duty of all staff members competent to perform safety critical or safety related work.

Recommendation 10
Safety Review Group should realise opportunities to rationalise the approach to managing recommendations to deliver efficiencies and facilitate the timely close-out of recommendations.

Recommendation 11
The good practice concerning safety critical communications evident in the Operations department should be rolled out corporately.

Recommendation 12
The confusion as to the status of the standards relating to procurement should be resolved as reference to hard copies indicates that CME Safety Standard 8 (ME/DS/08) is at version 2 and effective as of January 2003 whereas the intranet shows the departmental standard to be in draft. The intranet should reference the live versions of each standard as a priority and, as a second priority, advise which ones are being revised.

Recommendation 13
A standardised approach to technical audit should be developed and adopted by the Chief Mechanical Engineer's department.

Recommendation 14
Records of the logic underpinning engineering change need to be controlled and readily accessible to relevant staff.

Recommendation 15
The Chief Mechanical Engineer's departmental records should be readily accessible to relevant staff and availability should not be dependent on the presence of a single staff member.

Recommendation 16
The process of documenting all maintenance and overhaul work as a series of instructions and capturing it on the intranet should be progressed as a priority.

Recommendation 17
Standards and other documentation that are used for safety critical applications should be controlled and up-to-date. Consideration should be given to making them all available through the intranet facility. The appointment of a Document Controller within the Chief Mechanical Engineer's department at Inchicore Works will facilitate this.

Recommendation 18
The Chief Mechanical Engineer should initiate a review of the wheelset overhaul process as a priority, in light of the action currently being reported to be taken following wheel press on pressures not being met. This should be conducted by a wheelset expert.

Recommendation 19
The Chief Civil Engineer (designate) should clarify the status of the “Orange book” and brief staff members concerned as to when this rather than the applicable standard should be the reference document.

Recommendation 20
Iarnród Éireann should develop their competence management system to ensure that the competence of patrolmen is managed systematically and consistently. Informal initial and on-going assessment of competence should be superseded by the application of objective criteria applied by staff members holding a recognised competence assessment qualification.

Recommendation 21
Records of those briefed should be available to line managers in order that they can ensure that all affected staff members are briefed on changes to standards and other matters pertaining to the safety of Iarnród Éireann’s operation.

Recommendation 22
The concerns raised regarding the availability and competence of lookouts to other than infrastructure maintenance should be investigated and remedial action initiated as appropriate.

Recommendation 23
The approach of reorganising staff to make the best use of available resources within the organisation’s overall budget constraints is well understood but it is recommended that a strategic review of forward demands on the organisation is undertaken to ensure that resources are aligned to future needs.

Recommendation 24
The Chief Signal, Electrical and Telecommunications Engineer should prepare a project plan to identify work scope, schedule, resource and cost implications and provide a basis for ongoing measurement of progress agreed with the Chief Executive.

Recommendation 25
Consideration should be given to providing formal guidance, direction and training on the categorisation of faults arising within the SET domain.

Recommendation 26
The current SET maintenance staffing levels should be reviewed and if they are leading to extended maintenance cycles the risks associated with this should be assessed and if necessary staffing levels should be increased.

Recommendation 27
As a matter of urgency alternative arrangements to secure the proper protection of lone SET staff members working on unplanned maintenance and faulting should be introduced.

Recommendation 28
The workload relating to electrification should be reviewed to determine if current staffing is adequate and that the deputising arrangements are in practice robust. If the workload justifies, additional competent staff should be recruited.

Recommendation 29
Iarnród Éireann should review its competence management arrangements and develop a cohesive, company-wide and strategic capability within which an enhanced approach to assuring the competence of contractors' staff is adopted, individual records of competence are consistent and are readily accessible, assessment processes are consistent and competence requirements are defined in a manner that enables a risk based approach to training and assessment.

Recommendation 30
The Railway Safety Commission should require Iarnród Éireann to formally review progress against each of the AD Little recommendations of July 2006 and submit a report to the Railway Safety Commission detailing the position reached as at November 1st, 2007.

Appendix A

# Interviews

## List of interviewees

## List of people interviewed

Richard Fearn, Chief Executive
Peter Cuffe, Chief Safety & Security Officer
Audrey Bradley, Safety Systems Manager
Kay Doyle, Safety Manager, Operations
Cal Carmichael, Acting General Manager South & West
John Reville, Acting District Manager, Northern
Shane O' Neill, Performance Analysis Executive
Niall Foley, Safety Liaison Executive - Northern District
Tom Devoy, General Manager, DART
Margaret Keating, Safety Liaison Executive - DART
Carmel Gallagher, Audit Unit Coordinator - DART Safety Office
Roger Tobin, Operations Manager, DART
John Lane, Station Manager, Heuston
John O'Connor, Assistant Station Manager, Heuston
Dave Finlay, Station Manager, Pearse
Jim Meade, District Manager, Limerick
Sean Geoghegan, District Safety Executive, Limerick
Tommy Martin, Station Manager, Limerick Junction
Eileen Wilcock, Chief Engineer and Chief Civil Engineer (designate)
John Mullin, Safety Manager, Infrastructure
Kieran O'Donnell, Principal Engineer Track & Structures
Brian Lucas, Divisional Engineer, Dublin
Michael Leonard, Permanent Way Inspector
Peter Muldoon, Project Manager General Works
Pat Judge, Chief Engineer SET (designate)
Declan Monaghan, Safety Manager, New Works and SET
Padraig O'Lochlainn, Principal Engineer, Signalling and Power
Brian Fitzgibbon, Signal Engineer, Limerick
Phil Verster, Chief Mechanical Engineer
Ray Cassidy, Quality and Safety Manager, Mechanical Engineering
Gerry Feeney, Facilities Manager, Drogheda
Richard Mackey, Acting Fleet Manager, Fairview Depot
Stephen Hynes, Emergency Planning Office, CME department
Tony Geoghegan, HR Executive CME department
Maurice Kiely, Fleet Technical Services, Drogheda Depot
Seamus Costello, Manager Standards and Design Office CME)

Nicholas McShane, Clerical Officer Grade 4, Drogheda Depot
William O'Sullivan, Technical Manager, CME department
Gerry Conmy, Fleet Analyst, Drogheda Depot
John Kennedy, Works Manager, Inchicore.
J O'Sullivan, Manufacturing Manager, Inchicore.
Rory West, Production Foreman. Inchicore
Conor Doyle, Fleet Technical Support, Inchicore
Louis Gilvarry, Manager Purchasing (CFO department)
John Keenan, Director Strategy & Business Development
John Cassidy, Manager Training
Peter Miller, Manager People Development
Paul Stanley, District Traction Executive
Cieran Hannighan, CME – competence assessor
Bob Love, Building Maintenance Manager (east)
Liam Murphy, Manager Facilities and Buildings
Paddy Mangan, Technical Executive, Bridge Gangs

Appendix B

# Competence Assessment Criteria

## Competence Assessment Criteria Sheet

## Iarnrod Eireann CMS Audit Questions

| Criteria number | Criteria | Prompt number | Prompts |
|---|---|---|---|
| C1 | Competence management arrangements are well supported across the business. | C1a | Does the company have a documented CMS? |
| | | C1b | What work activities are covered by the CMS? |
| | | C1c | Have the risks created by work activities been assessed in order to determine the effect they may have on the safety of the railway and people working on it? |
| | | C1d | Are competence and performance requirements defined for activities where there are significant risks? |
| | | C1e | Are controls in place for all significant competence related risks? |
| | | C1f | Have training and development needs been identified against competence and performance requirements? |
| | | C1g | Are competence assessments derived from the competence and performance requirements? |
| | | C1h | Is the CMS reviewed periodically or following an incident or accident or other issues? |
| | | C1i | Are arrangements in place to ensure staff responsible for the management and implementation of the CMS are competent? |
| | | C1j | Are individual competence records complete and up to date? |
| | | C1k | Is management information relating to the competence of staff undertaking safety related work available and regularly reviewed by a senior manager? |
| | | C1l | Is there a process for ensuring that contractor organisations have suitable competence management arrangements in place? |
| C2 | Recruitment is carried out in a timely and effective manner. | C2a | Are staff and contractors selected and recruited against competence and performance requirements? |
| | | C2b | Are staff and contractors selected and recruited using appropriate methods? |
| | | C2c | Are medical standards in place (fitness for duty)? |
| C3 | Training and development is provided to staff to ensure they are performing to standard. | C3a | Are the training and development needs of staff, recruits and managers effectively identified? |
| | | C3b | Is training content linked to competence and performance requirements? |
| | | C3c | Does training include assessment of competence? |
| | | C3d | Is the competence of staff updated in response to all relevant changes? |
| C4 | Competence assessments and performance reviews are carried out regularly and in an effective manner. | C4a | Are assessment requirements for staff, recruits and managers effectively identified? |
| | | C4b | Are assessment methods appropriate to competence and performance requirements? |
| | | C4c | Is the frequency of assessment based on the risk resulting from under-performance? |
| | | C4d | Are all assessors competent? |
| | | C4e | Do all assessors have sufficient time, resources and support to undertake assessments consistently and effectively? |


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| Criteria number | Criteria | Prompt number | Prompts |
|---|---|---|---|
| | | C4f | Is evidence from assessments used to decide what actions will be taken to address any areas of under-performance? |
| C5 | Safety-critical work activities and plant operations are always carried out in a competent manner. | C5a | Are eligibility requirements for staff seeking competence certificates clearly defined and applied? |
| | | C5b | Is the training provided before certificates are issued approved and evaluated? |
| | | C5c | Are newly qualified staff subject to a defined period of post certification monitoring or mentoring? |
| | | C5d | Are assessments carried out before competence certificates are re-issued? |
| C6 | Work performance is managed and controlled by ensuring that only competent staff or persons working under competent supervision carry out safety-critical work activities and plant operations. | C6a | Is staff competence and performance monitored between planned reassessments and performance reviews? |
| | | C6b | Is the frequency of monitoring based on the risk resulting from under-performance? |
| | | C6c | Are arrangements in place to identify poor performance? |
| | | C6d | Are actions identified and taken to address poor performances and restore competence? |
| | | C6e | Does the company ensure that staff and contractors are only asked to undertake work for which they are competent? |
| | | C6f | Are arrangements in place to ensure staff and contractors are fit for duty and not under the influence of drugs and alcohol? |
| | | C6g | Are arrangements in place for checking the evidence of competence for all staff and contractors before the commencement of any safety critical work? |
| C7 | The CMS is subject to periodic audit and review | C7a | Are there processes for making sure the company's competence management arrangements keep up to date with internal changes? |
| | | C7b | Are there processes for making sure the company's competence management arrangements keep up to date with regulatory changes, customer demands and recognised best practice? |
| | | C7d | Is the quality and consistency of the implementation of the CMS subject to regular review or audit? |


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