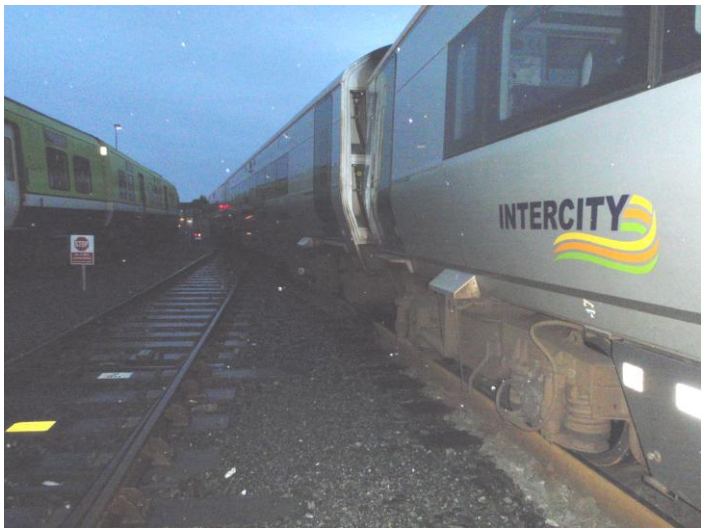
Railway Safety Commission

Post incident inspection following a derailment at Drogheda depot

04 July 2012



Issue	Prepared by	Checked by	Issue date
First draft	AJH	AB	22/09/12
Draft for Comment	AJH	AB	17/10/12
Finalised	AB	GB	08/11/12

Executive Summary

On Wednesday 4th July 2012 at 00:57 hours (hrs) a three carriage 22000 consist was moved from platform 1 at Drogheda station to Drogheda depot sidings. While undertaking this manoeuvre the train derailed at set of hand points, number 7 (HP7) inside Drogheda depot sidings. The points themselves had been subject to maintenance work on the night and were not in a condition to operate safely.

The RSC was notified of the occurrence by Iarnród Éireann (IÉ) at 02:15 hrs on Wednesday 04th July. Following this notification the RSC commenced its own initial inquiries and as a result of which it was decided to undertake a Post Incident Inspection under Section 50, subsection 7, of the Railway Safety Act 2005, as amended, ("the Act").

Post incident, the RSC undertook a site visit and also reviewed the salient standards and procedures relating to worksite management (particularly with regard to sidings), communications and the training and competence of relevant IÉ personnel.

Having completed the initial evidence and records review phase the RSC conducted a number of interviews with various IÉ personnel. Based on the information recorded in these interviews and the records (evidence) collected the RSC have identified three minor non-compliances (miNC) indicating sporadic lapses in the implementation of the IÉ's Safety Management System (SMS). These minor non-compliances are shown in Table i:

Table i - List of Minor Non-Compliances

Number	Area
11/12-PII-miNC 1	Non-compliance with section B clause 2.2 and 3.1 of the IÉ Rule Book with regards to working on or near the line
11/12-PII-miNC 2	Non-compliance with section 6.3 of Railway Safety Standard 20b
11/12-PII-miNC 3	Non-compliance with section J clauses 1.2 and 4.3.2 of the IÉ Rule Book with regards to controlling shunting movements

To address the minor non-compliances IÉ are required to advise the RSC by a prescribed date of the actions that they will take to address these and the timescale within which they shall be completed. This notification from IÉ will be in the form of an Improvement Plan in accordance with Section 76 of the Act. The RSC will review this Improvement Plan and, subject to it being acceptable, will monitor its execution.

In addition to the non-compliances four 'Action Required' items have been identified for IÉ to address and the RSC has assigned planned completion dates (PCD) to each of these, as follows:

Table ii - List of Action Required items

Number	Area	PCD
11/12-PII-AR 1	IÉ should review the procedures to notify appropriate operations and Infrastructure staff of alterations to possessions	6 months
11/12-PII-AR 2	IÉ should brief appropriate Infrastructure maintenance staff on the requirements for establishing a Safe System Of Work in a siding	3 months
11/12-PII-AR 3	IÉ should review the processes for planning maintenance work in depot sidings	3 months
11/12-PII-AR 4	IÉ should undertake review of Cognifer spring assisted manual points	6 months

In the context of this report it should be noted that, due to other possession related incidents at the beginning of 2012, on the 24th February 2012 in accordance with the Railway Safety Act 2005 the RSC informed IÉ of their intention to serve an improvement notice. The improvement notice was served on the 20th March 2012 and included a requirement for IÉ to undertake a "root and branch review of its arrangements for the management of possessions".

In addition to this a further incident at Lavistown Level crossing near Kilkenny, related to possession management, contributed to the RSC initiating a Post Incident Inspection in April 2012. One Action required item of the Lavistown PII has been referenced in this report.

Table of Contents

1. Purpose of the Post incident inspection (PII)

The Railway Safety Commission (RSC) is concerned with the prevention of accidents and incidents. It is not the role of the RSC to determine the cause of an accident or incident — that responsibility rests with the Railway Accident Investigation Unit (RAIU) — but to identify whether an occurrence resulted from a duty holder's failure to comply with its approved Safety Management System (SMS). The initial evidence regarding the incident at Drogheda depot on the 4th July 2012 indicated that non-compliances had occurred which contributed to the occurrence.

Therefore, the RSC undertook an Post Incident Inspection (PII) in accordance with section 50 (7) of the Railway Safety Act 2005, as amended. The purpose of the inspection was to determine the duty holder's compliance with its Safety Management System (SMS).

1.1. Scope of PII

The scope of this PII was to determine if any of the following occurred with regards to the incidents discussed in this report:

- Systemic failures of the IM's (IÉ) possession management personnel.
- Systemic failures of the CME depot procedures / staff.
- Systemic failures regarding the management of interfaces between Rolling Stock maintenance, Infrastructure maintenance and Operations departments when planning and executing work in depot sidings

The PII would also identify if there is a need for the RSC to take enforcement action.

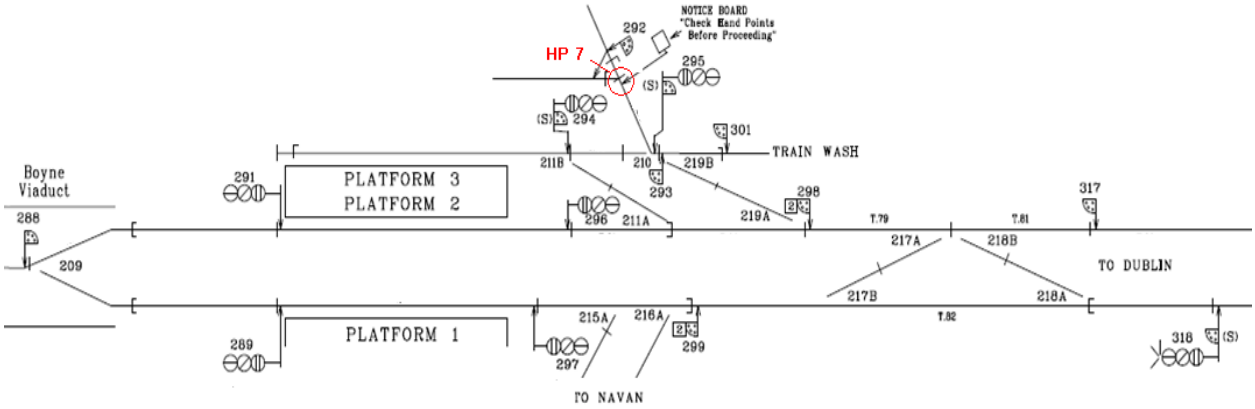
2. The Incident

2.1. Parties Involved

- Iarnród Éireann (Irish Rail) is the Railway Undertaking (RU) and currently responsible for the Signallers and Regulators based in Central Traffic Control (CTC), Connolly.
- Iarnród Éireann (Irish Rail) is the Infrastructure Manager and is currently responsible for the maintenance of infrastructure and rolling stock.

2.2. Location

Drogheda depot sidings are located immediately East of Drogheda station and are accessed south of the station via the 'Up main' as shown in Figure 2.2.a. Hand Points 7 are located within the Chief Mechanical Engineers (CME) boundary the limits of which is defined by Shunt Signals DA 293, for movements entering the sidings and DA 292 for movements leaving the sidings.



2.2-a Schematic of Drogheda Station and Depot sidings

2.3. The Equipment

Hand Points 7 (HP7) are spring assisted manual points and therefore require minimal force to operate them. When not in use the handle of the points should be laid horizontal at the base of the points parallel to the ground. To activate the points this handle is lifted to a vertical position then connected to the points gearing for the initiation movement by the operator.

2.4. The Vehicle

The train involved in this incident was a three carriage Class 22000 Diesel Multiple Unit (DMU), indentified as Unit 22012. The unit consist included the following carriages 22212, 22412 and 22312. 22212 was the leading carriage at the time of the derailment.

There was no evidence to indicate that there were any significant faults with any of the carriages that could have contributed to the incident that is the subject of this report.

3. The Post Incident Inspection

3.1. Sources of evidence

1. Recordings of calls establishing the protection arrangements for the maintenance work at HP7 for the following period (Date-Time):
    a. 03/07/2012-20:00 to 04/07/2012-02:15
2. Station CCTV footage showing train movements or permanent way staff actions between the following period (Date-Time):
    a. 03/07/2012-20:00 to 04/07/2012-02:15
3. The IÉ Rule book
4. Daily Operations Reports for the following dates 02nd,03rd,04th and 05th of July.
5. Training and competence records for the staff relevant to this incident, including:
    - Maintenance personnel involved in the incident
    - Driver of unit that derailed
    - Points operators (for the night of 03/07/2012)
    - CTC signaller for the shift during which the incident occurred
6. Copies of statements taken by IÉ personnel prior to the 10/07/12 regarding this incident.
7. Summary of work-orders for the following points during the following period 10/07/2011 to 10/07/2012
    - Drogheda Depot - HP7
    - Portloiase Depot - 2A (A similar set of hand points in another train care depot)
8. A schematic of Drogheda layout including point and signal numbers
9. Training material given to Person In Charge Of Possession (PICOP) staff with regards to Section T Part four of the Rule Book
10. Training material with regards to Section B of the Rule Book
11. Railway Safety Standard 20b - Training and assessment of CME personnel authorised to shunt traction (2009)
12. Details of similar events that have occurred in depot sidings since 01/01/2009
13. Copy of the Weekly Circular for the week commencing 02/07/12

3.2. List of interviewees

A source of evidence was interviews with a number of personnel from various departments of Iarnród Éireann. These included personnel from both 'Operations' and 'Engineering'.

The specific post holders interviewed were the;

- Train driver
- Station controller (Drogheda)
- Points Man (Drogheda)
- Head of Engineering safety
- Duty manager CME (Drogheda)
- Permanent Way Inspector (Drogheda)
- Competence Manager Engineering
- Welder
- Permanent way worker
- Regional Manager
- Head of Operations Safety

3.3. Overview of Evidence - Sequence of events

The salient points in the 24 hrs proceeding the derailment at HP7 are as follows:

3.3.1. Time Period 1 – 10:00 to 22:00, 03/07/2012

- On the morning of Tuesday 3rd July the Permanent Way Inspector (PWI), Drogheda, received a call from the Safety and Facilities Manager at Drogheda Depot regarding an issue with Hand Points 7 (HP 7).
- At approximately 13:00 the PWI attended site at Drogheda siding and inspected the points in the presence of the points operator working the day shift.
- The PWI assessed the points and observed that the handle was broken and the points were being operated with a bar and held in position by a scotch (a wooden wedge).
- Between 14:00 and 14:30 the PWI resourced a member of the welding team and this individual left their day shift duties to rest before returning to undertake the night shift work in Drogheda sidings.
- After confirming the welding resource the PWI took the decision to rectify the points that night and informed depot personnel accordingly.

3.3.2. Time Period 2 – 22:00 to 02:00

Between 22:00 – 23:14 hrs the PWI, Welder and Track worker all arrived at Drogheda Permanent Way Depot, which is positioned in the vicinity of Drogheda station. The maintenance work planned for HP7 is discussed by these individuals, accounts of these discussions and further discussions that took place after the welder and track worker had undertaken an initial inspection of HP7 vary between interviewees.[1]

However, the following can be verified from interview, call log and CCTV evidence:

- 23:14 – 00:02 the track worker visits the worksite twice and removes a significant piece of the switch assembly (HP7).
- 00:02 – 00:04 the trackworker and welder carry this equipment on a luggage trolley across the 'Up and Down main' lines and to the car park via platform 1.
- 00:32 the unit 22012 arrives at Platform 1.
- 00:50 the Points operator for Drogheda depot sidings contacts CTC and requests "one to the yard". The CTC signaller authorises this movement and checks that the points operator is aware that a possession is due to be taken in the sidings that night. The Points operator states that he is aware of this. This Points operator is located in the depot at this time and begins to make their way outside to the depot siding, where the train movement is occurring.
- 00:51 Driver of unit 22012 is instructed by the Station Manager that the Points Operator has given authorisation for the train to be moved from platform one to the yard. This movement commences at 00:51 as driver proceeds to move the train from the Up main to the Down main, via points 217, and into the depot sidings through points 219.
- 00:57 as the train travels over of HP7 it derails.
- Approximately 00:58 the Points operator, after being contacted by telephone and advised by the Station Manager that he has heard a bang, continues on his way to HP7 to observe that the train has derailed.
- 01:00 – 01:01 The driver makes two emergency calls to CTC. The initial call is not answered successfully and the second call (which occurs after a general call by the signalman) experiences technical problems.
- 01:03 the driver calls CTC control for a third time and relays the details of the derailment.

[1] IÉ latterly advised and supplied a record of briefing, form number CCE RB5608 which confirmed that the welder was briefed on the work to take place and that a TIII was required to carry out this work. IÉ also advised that the Permanent Way member of staff was present for this briefing but did not sign the briefing form. The Permanent Way Inspector did not feel it necessary to ask him to sign the form on the night in question as he was regularly allocated similar protection work.

4. Facts, analysis, findings & outcomes

Based upon the above facts, evidence and analysis a number of findings are now presented. From the findings identified as part of this inspection a number of inspection outcomes have been developed. These outcomes are in accordance with the RSC's guidance on supervision and enforcement, RSC-G-023-B, but for convenience they are explained below. Where possible, they are made specific, measurable, achievable, realistic and timely (SMART). The supervision activity outcomes are classified as follows;

Major Non Compliance (MaNC): an area of non-compliance with an IÉ internal, an applicable external standard, or legislation that is evidence of a system failure.

Minor Non Compliance (miNC): an area of non compliance with IÉ internal, an applicable external standard, or legislation that is evidence of a sporadic lapse in implementation of a system or deviation from a system.

Action Required (AR): an area where potential exists for a non compliance to occur unless remedial actions or improvements are made, or an isolated error that requires correction.

Scope for improvement (SFI): an area highlighted where, in the opinion of the Auditor, system or business improvement can be achieved by the company. Typically this is phrased as a recommendation, the merits and implementation of which should be decided by audited organisation.

The format in which outcomes are made are shown thus;

11/12-PII-AR 1 - "unique supervision activity number for the year"/"year"-"supervision activity"-"counter with prefix MaNC, miNC, AR or SfI"
Title (High level descriptor of identified issue)
Detail as required
PCD: (Planned completion date only specified for an action required item)

Table 4-a: Action Required Format

4.1. Safe Systems of work

Similar to other engineering and working environments prior to undertaking a task railway personnel should establish a Safe System Of Work (SSOW). Details of how a SSOW should be established are given in the IÉ Rule Book Section B Part Two. There are different types of SSOW arrangements, for a group, ranging from a 'Safe-guarded green zone' to working 'Red zone' with lookouts. The basic hierarchy of SSOW arrangements, with regards to safety, is shown in Table 4.1-a.

Type of SSOW	Arrangements
Safeguarded Green Zone	**Safeguarded** by stopping trains on all lines
Separated Green Zone	**SEPARATED** from the nearest line open to trains, by a distance of at least 3 metres (10 feet)
Fenced Green Zone	**FENCED** from the nearest line open to trains where one or more lines remain open to trains
Red Zone with lookout Protection	Lines open to trains work protected by warnings given by "Lookout" staff

4.1-a Table of red and green zone protection arrangements

In this report the protection arrangements for the two distinct work activities that were directly related to HP7 occurring during the Tuesday/Wednesday night shift are assessed. These are;

1. The inspection of hand-points 7 (HP7)
2. Maintenance work undertaken on HP7

In this section the instructions that staff were given, the SSOW arrangements that were made and the requirements of the IÉ rule book and working instructions are discussed.

4.1.1. Inspection of Hand-points 7

It can be established from CCTV footage and interview statements that two members of IÉ staff walked from platform one in Drogheda Station to the vicinity of HP7. It was stated in the interview process that the two members of IÉ personnel were; one member of the Permanent Way staff and a Welder.

These individuals walked to points HP7 to identify the extent of work required to rectify them. When questioned on the Welder's role in this activity, interviewees gave generally consistent answers stating that the Welder was there to inspect the points, indentify the work required and undertake this work.

The role of the permanent way member of staff was less clear. Interviewees seemed to agree that the individual was there to facilitate the welder; however, answers to identify what this entailed differed between interviewees. The answers ranged from stating the individual was there to physically assist the welder with the work, to acting as a Track Safety Co-ordinator and providing a SSOW.

The interview process identified that Permanent Way Inspector had intended for the permanent way individual to establish the SSOW; however, due to the reactive nature of the work the protection arrangements were not pre-planned and the extent of the individuals understanding of their role seemed poor.

It is also worthy of note that documentation submitted by IÉ demonstrated that the welder had been briefed on his role, on the night in question, by the Permanent Way Inspector and signed to acknowledge they understood this. Whereas, the Permanent Way member of staff did not sign a briefing form to confirm they understood their role. [2] There was also no documentation to confirm that the Permanent Way member of staff had briefed the welder on the SSOW, this again would indicate that the individual was not aware of their role in the protection arrangements.

Section B of the Rule Book Part Two Clause 6.6.5 states the following with regards to Red Zone Working.

6.6.5 WHEN YOU ARE ALLOWED TO ARRANGE A RED ZONE

[2] IÉ latterly advised that the Permanent Way Inspector did not feel it necessary to ask him to sign the form on the night in question as he was regularly allocated similar protection work.

• you may allow your group to work in a RED zone ONLY if:

- absolutely necessary and it is not practicable to arrange a GREEN zone, AND

- lookout protection can be provided to give sufficient warning of all trains on the line(s) concerned

• when it is necessary to arrange lookout protection, clause 6.11 applies

In some specific cases where there are local instructions and/or risk assessments in place some work may be undertaken at night in a red zone, however, in the main a SSOW, i.e. a green zone, should be established whenever detailed inspection or maintenance of track assets is to take place during the hours of darkness.

It is also worthy of note at this point that although it was stated in the interview process that the inspection work was undertaken under red zone conditions, this was not done in accordance with the rule book as a lookout was not used to establish the SSOW.

4.1.2. Maintenance undertaken on Hand-points 7

For the rectification work undertaken a red zone would be prohibited by the rule book as work undertaken would affect the safe passage of trains. Therefore Green Zone working arrangements should have been employed for this work using either section T Part three or four of the rule book.

When interviewed many staff stated that there was an agreed procedure between Drogheda CME staff and permanent way personnel for taking possession of track in this area. However, there was no evidence that a set instruction had been formalised, by these departments, or approved.

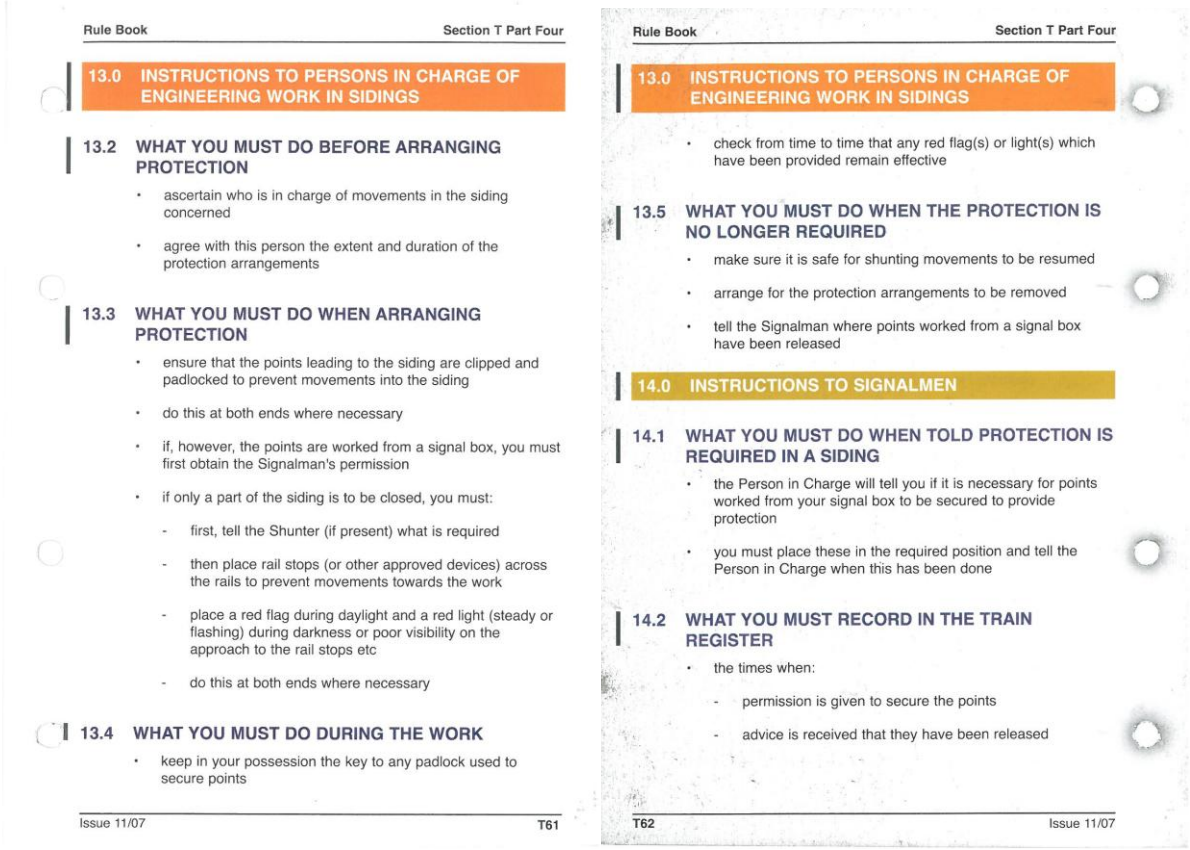
It would seem that this arrangement involved communication between the Points operator and the permanent way staff. However, it was stated that this did not take place on the night as the permanent way member of staff did not have the appropriate phone number and did not take any other action to inform CME personnel before proceeding with the removal of the switch lever.

Section T Part four of the Rule Book applies to “Protection of Engineering work in sidings” and this would have been an appropriate way to protect the line for the work undertaken on the 03rd/4th July. Protection arrangements in accordance with Section T Part three could also have been used but this would have restricted the movement of trains in the depot area and required significantly more personnel and equipment. Part Four also allows for only part of a siding to be closed.

The instructions given in ‘Section T Part Four’ require a Person In Charge (PIC) to be appointed who is responsible for the for the following:

- To ensure that arrangements are made to prevent shunting movements taking place which could endanger (or be endangered by) engineering work in siding.

Figure 4.1.2a is taken from the IÉ Rule Book and indentifies a number of key aspects of establishing a protection using section T Part four.



Rule Book Section T Part Four

13.0 INSTRUCTIONS TO PERSONS IN CHARGE OF ENGINEERING WORK IN SIDINGS

13.2 WHAT YOU MUST DO BEFORE ARRANGING PROTECTION

- ascertain who is in charge of movements in the siding concerned
- agree with this person the extent and duration of the protection arrangements

13.3 WHAT YOU MUST DO WHEN ARRANGING PROTECTION

- ensure that the points leading to the siding are clipped and padlocked to prevent movements into the siding
- do this at both ends where necessary
- if, however, the points are worked from a signal box, you must first obtain the Signalman's permission
- if only a part of the siding is to be closed, you must:
  - first, tell the Shunter (if present) what is required
  - then place rail stops (or other approved devices) across the rails to prevent movements towards the work
  - place a red flag during daylight and a red light (steady or flashing) during darkness or poor visibility on the approach to the rail stops etc
  - do this at both ends where necessary

13.4 WHAT YOU MUST DO DURING THE WORK

- keep in your possession the key to any padlock used to secure points

Issue 11/07 T61

Rule Book Section T Part Four

13.0 INSTRUCTIONS TO PERSONS IN CHARGE OF ENGINEERING WORK IN SIDINGS

- check from time to time that any red flag(s) or light(s) which have been provided remain effective

13.5 WHAT YOU MUST DO WHEN THE PROTECTION IS NO LONGER REQUIRED

- make sure it is safe for shunting movements to be resumed
- arrange for the protection arrangements to be removed
- tell the Signalman where points worked from a signal box have been released

14.0 INSTRUCTIONS TO SIGNALMEN

14.1 WHAT YOU MUST DO WHEN TOLD PROTECTION IS REQUIRED IN A SIDING

- the Person in Charge will tell you if it is necessary for points worked from your signal box to be secured to provide protection
- you must place these in the required position and tell the Person in Charge when this has been done

14.2 WHAT YOU MUST RECORD IN THE TRAIN REGISTER

- the times when:
  - permission is given to secure the points
  - advice is received that they have been released

T62 Issue 11/07

4.1.2-a IÉ Rule Book Section T Part 4

Fundamental requirements that were not carried out for the 03rd / 04th July are as follows:

- Identification of a Person In Charge (PIC)
- Suitable communication with the person in charge of movements in the siding
- Protection of the site by clipping and scotching points (as required) and suitable communication with the Signalman and person controlling movements in the siding
- Protect the worksite using 'rail stops' and 'red light'.

Failure to establish an adequate SSOW meant that the Track Worker and Welder did not suitably protect themselves or ensure the safe passage or trains. The requirements are stated in the following clauses of Section B of the Rule book:

2.2 Responsibility for your Safety

- *Whenever you go on or near the line, arrangements must be made to ensure you are not endangered by train movements (including movements in a possession).*

3.1 Before work starts

- *You must not start any work which may affect the safety of trains unless authorised by the Person in Charge.*
- *If you are the Person in Charge of any such activity, you must first ensure that the appropriate Rules and instructions have been observed.*

Finding 1: IÉ personnel failed to implement a SSOW in accordance with the Rule Book for the worksite at HP 7 on the 03rd/04th July. As a result, the working arrangements employed endangered both IÉ personnel and the passage of trains. These actions are non-compliant with Section B clauses 2.2 and 3.1 of the Rule Book.

11/12-PII-miNC 1: Non-compliance with section B clause 2.2 and 3.1 of the IÉ Rule Book with regards to working on or near the line
For the worksite at HP7 on the 03rd/04th July IÉ personnel failed to implement a SSOW in accordance with the Rule Book and working arrangements employed endangered both IÉ personnel and the passage of trains.

4.2. Possession Arrangements

The utilisation of a main line 'Section T Part 3' possession to protect the work was also discussed by Permanent Way personnel responsible for planning the work. In the interview process it was stated that the Track Worker at the site was instructed to establish a SSOW after the Person In Charge Of the Possession (PICOP) had taken the mainline possession.

MONDAY 2ND TO SUNDAY 8TH JULY, 2012 (CONTD.)

DAYS OF THE WEEK: MON=1; TUE=2; WED=3; THUR=4; FRI=5; SAT=6; SUN=7

ENGINEERING WORKS REQUIRING ABSOLUTE POSSESSIONS - SECTION T PART III

Section	Signals	Up Only Down Only Up & Down Single	Times From	Times To	SLW	Days of the Week	Work Description	Miles From	Miles To
DUBLIN-ROSSLARE EUROPORT (CONTD.)									
Gorey-Enniscorthy	RL541 to RL547 & RL548	Single	08.35 11.50 15.50 20.55 00.01 22.00 00.01	11.10 13.20 18.00 24.00 05.15 24.00 08.00		1,2,3,4,5,6,_ 1,2,3,4,5,6,_ 1,2,3,4,5,6,_ 1,2,3,4,_,6,_ _,2,3,4,5,6,_ _,_,_,_,_,_,7 _,_,_,_,_,_,7	Track Repairs	59¼	59¾
Enniscorthy-Wexford	RL547 & RL548 to RL557 & RL558	Single	08.15 12.15 13.50 16.10	11.25 13.10 15.30 18.00		1,2,3,4,5,6,_ 1,2,3,4,5,6,_ 1,2,3,4,5,6,_ 1,2,3,4,5,6,_	Track Repairs	77	77¼
Enniscorthy-Rosslare Europort	RL547 & RL548 to RL579	Single	21.45 00.01 00.01 00.01	24.00 05.15 06.30 08.00		1,2,3,4,5,6,_ _,2,3,4,5,_,_ _,_,_,_,_,6,_ _,_,_,_,_,_,7	Track Repairs	77	80
Wexford-Rosslare Strand	RL557 & RL558 to RL571 & RL572	Single	08.00 13.30 16.30	11.45 15.55 17.50		1,2,3,4,5,6,_ 1,2,3,4,5,6,_ 1,2,3,4,5,6,_	Track Repairs	110½	110¾
Rosslare Strand-Rosslare E'port	RL571 & RL572 to RL579	Single	08.05 13.10 16.35	11.45 16.10 17.45		1,2,3,4,5,6,_ 1,2,3,4,5,6,_ 1,2,3,4,5,6,_	Track Repairs	112½	112¾
DUBLIN-BELFAST									
Through Connolly North	CY33 &FP153Pts to CY22 & CY21 to CY17	Down	00.50	04.45	No	_,_,3,4,5,6,_	Track Repairs	0	1¼
Connolly-Malahide incl. Howth Branch	CY17 & CY15 to ND374 & Buffer Stops Howth	Down	00.45 00.45	05.20 08.00	No No	_,_,3,4,5,6,_ _,_,_,_,_,_,7	Track Repairs	0	9
Malahide-Drogheda Ind. Mosney Loop	ND374 to DA318	Down	01.00 01.00	05.30 07.50	No No	_,_,3,4,5,6,_ _,_,_,_,_,_,7	Track Repairs Platform Works	10	31
Through Drogheda	DA318 to FP208	Down	01.00 01.30	04.30 07.50	No No	_,_,3,4,5,6,_ _,_,_,_,_,_,7	Track Repairs, Relay Down Platform	29	30
Drogheda-Dundalk	FP208 Pts to FP201 pts	Down	21.50 01.10 01.20 01.30	23.20 05.30 05.30 08.00	No No No No	1,2,3,4,_,_,_ _,2,3,4,5,_,_ _,_,_,_,_,6,_ _,_,_,_,_,_,7	Track Repairs	32	54

- 105 -

W.C. 3513
W.E. 08.07.12

4.2-a Page 105 of weekly circular No. 3513, dated 02/07/2012 to 08/07/2012

MONDAY 2ND TO SUNDAY 8TH JULY, 2012 (CONTD.)

W.C 3513
W.E 08.07.12

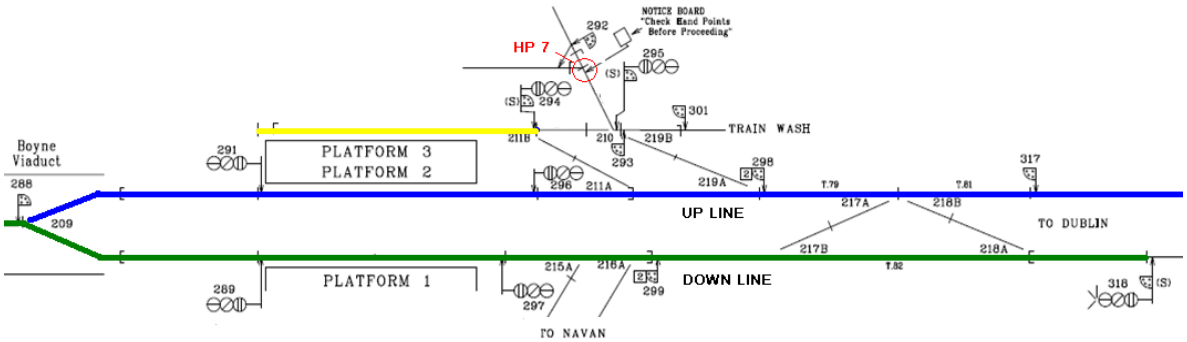
DAYS OF THE WEEK: MON=1; TUE=2; WED=3; THUR=4; FRI=5; SAT=6; SUN=7

ENGINEERING WORKS REQUIRING ABSOLUTE POSSESSIONS - SECTION T PART III

Section	Signals	Up Only Down Only Up & Down Single	Times From	Times To	SLW	Days of the Week	Work Description	Miles From	Miles To
BELFAST-DUBLIN									
Dundalk-Drogheda	FP201 Pts to FP208 Pts	Up	00.40 01.15	05.00 08.00	No No	_,2,3,4,5,6,_ _,_,_,_,_,_,7	Track Repairs	54	32
Drogheda Yard	DA294 to Buffer Stop Platform 3	Platform 3	00.30	04.30	No	_,_,3,4,5,6,7	Track Repairs	31¾	31½
Through Drogheda	FP208 to DA319	Up	01.00 01.00	04.30 07.50	No No	_,_,3,4,5,6,_ _,_,_,_,_,_,7	Track Repairs, Relay Down Platform	30	29
Drogheda-Malahide Incl. Skerries Loop	DA319 to ND373	Up	23.10 00.01 00.01	24.00 05.30 07.50	No No No	_,2,3,4,5,6,_ _,_,3,4,5,6,_ _,_,_,_,_,_,7	Track Repairs, Platform Works	29	10
Malahide-Connolly ind. Howth Branch	ND373 & Buffer Stop Howth Branch to CY18	Up	00.40 00.40	05.20 08.15	No No	_,_,3,4,5,6,_ _,_,_,_,_,_,7	Track Repairs	9	0
Through Connolly North, New Sidings Fairview	FP180 &FP184 to Buffer Stops Up Sidings	Up	09.00	15.00	No	1,2,3,4,5,6,7	Inspections	1	1¼
Fairview Sidings	CY70 to Head Shunt	Fairview Siding	00.50 00.50	04.45 07.00	No No	_,2,3,4,5,6,_ _,_,_,_,_,_,7	Track Repairs	0½	1
Through Connolly North	CY18 & CY23, CY20 Incl. FP153Pts to CY32	Up	00.45	04.45	No	_,_,3,4,5,6,_	Track Repairs	0	1¼
Through Connolly South	CY32, CY33 & CY36 all routes to CY47, CY51, CY52, CY48, FP133 including Connolly Wash Road CY23 to CY35, CY38 & CY45	Up & Down	00.50	04.45	No	_,_,3,4,5,6,_	Track Repairs Sandite	0¼	0
Through Connolly	CY18 & CY17 all routes Disc. No. 9, Disc. No. 38, CY47, CY51, CY52, CY48, CY78 & CY79 ind. Connolly Wash Rd. CY74 & CY75 to CY35	Up & Down	01.10	08.00	No	_,_,_,_,_,_,7	Track Repairs	0¼	0
NORTH WALL									
Through Northwall	Sig No. 9 to DS105, CW36, CY22,	Down	23.50 00.01 00.01	24.00 05.00 08.00		1,2,3,4,5,6,_ _,2,3,4,5,6,_ _,_,_,_,_,_,7	Track Repairs	4¼ 0	4¾ 0¼
Through Northwall	FP147pts, CY20 to FP26pts	Down	23.50 00.01 00.01	24.00 05.00 08.00		1,2,3,4,5,6,_ _,2,3,4,5,6,_ _,_,_,_,_,_,7	Track Repairs	4¾ 0¼	4¼ 0

- 106 -

4.2-b Page 106 of weekly circular dated 02/07/2012 to 08/07/2012 (W.C. 3513)



Key:

Section	Signals	Coloured Section indicator
Drogheda Yard	DA 924 – Buffer stop platform 3	
Through Drogheda (UP)	FP 208 to DA 319	
Through Drogheda (DOWN)	DA 318 to FP 208	

4.2-c Schematic of Drogheda station showing potential possessions.

Figures 4.2-a and 4.2-b were the possession arrangements that were in planned between Monday 02nd July and Sunday 08th July. Figure 4.2-c illustrates the position of the possessions relevant to Drogheda station and sidings. It should be noted that the sections taken from the weekly circular shown in Figures 4.2-a and 4.2-b show that on the Tuesday night (03rd July) there was no possession planned for the Up Main, Down Main, yard or the sidings. However, on the night of Tuesday 03rd July

the PICOP called the signaller in CTC "looking for two possessions", which were Drogheda yard and between Dundalk and Drogheda.
The possession limits requested in this conversation differ from the published limits. There was also no evidence that a formal notification was issued to change the possession limits. Although this possession was not taken on the night, call evidence illustrates the intention of the staff on the night to take a possession between through Drogheda that was not published.

Finding 2: IÉ possession management staff intended to take a possession that was not published appropriately. These actions would have lead to a non-compliance with Section T Part 3 of the Rule Book clause 7.3, viz;

7.3 – Publication of Arrangements for possessions

- *Details of the possession arrangements must be published in the Notice*
- *Altered or additional arrangements of those shown in the notice are permitted only in an emergency or in exceptional circumstances, and then by agreement with the Operating Officer.*

To ensure possessions are taken in accordance with the requirement 7.3 of the rule book the RSC believe IÉ should review their processes controlling the publication of alterations in possession limits.

11/12-PII-AR 1: IÉ should review the processes to notify appropriate Operations and Infrastructure staff of alterations to possessions
IÉ should review the processes notifying appropriate operations and Infrastructure personnel of changes to possession limits.

PCD: 6 months from final issue of report.

In addition to this, as discussed in this section and section 5.2, the interview process demonstrated that a number of key individuals involved in this incident were unclear on their role and how the work was to be protected.

Finding 3: Individuals involved in undertaking maintenance work at HP7 were unsure of their role and the protection arrangements that were planned.

Issues in this area were also identified in the Lavistown PII undertaken earlier in 2012. This PII indentified the following findings:

- ***Finding 9:*** *The briefing processes for possessions addressed in this report were dispersed and inconsistent in the manner they were given.*

- ***Finding 10:*** *Some of the personnel interviewed showed a lack of understanding of their role and of protection arrangements for the possession, for example; limits of the possession, location of detonator protection, level crossing arrangements and work site limits.*

and indentified the following action:

06/12-PII-AR 5: *IÉ should review the processes controlling the briefing of staff prior to possessions*
This review should include:
- Procedures for ensuring all staff are briefed
- Providing training to staff with regards to delivering briefings
- Requirement for additional meetings between the PICOP and regional staff to ensure that possession safety arrangements are clearly established and understood by all staff.
PCD: 12 months from final issue of report.

The RSC believe that addressing 06/12-PII-AR 5 will ensure IÉ also address finding 3 of this report.

4.3. Training and competence of staff

4.3.1. Infrastructure maintenance staff

4.3.1-a Competence Assessment dates for both the welder and track worker

Role	PTS	TSC	TSC Assessment	PIC	PIC Assessment	PICOP	PICOP Assessment
Track worker	17/05/11	29/02/12	27/07/09 (Post re-fresher completed on 12/06/09)	05/03/12	17/08/09 (Post re-fresher completed on 27/07/09)	26/10/11	06/05/12
Welder	06/02/12	30/04/12	18/06/2012	N/A	N/A	N/A	N/A

Table 4.3.1-a shows that both the Track worker and welder had received training on how to protect themselves when on or near the line, Personal Track Safety (PTS) and establish worksites, Track Safety Co-ordinator(TSC). In addition to this the Track Worker had completed the Person In Charge (PIC) course, which is required for an individual to take a T Four, and PICOP training.

Evidence was obtained by the RSC to demonstrate that the PIC course contained instruction regarding establishing a possession in accordance with Section T Part four of the Rule Book. Evidence was also obtained to demonstrate that the basic principles of protecting yourself and traffic movements when working on or near the line were given in PTS, TSC, PIC and PICOP courses.

Finding 4: The evidence collected confirms that IÉ were compliant with the training and assessment of the Track Worker with regards to possession protection. However, the RSC believe there is suitable evidence to indicate that the individual's actions contravened a number of fundamental Rule Book instructions with regard to ensuring their own safety and the safety of others, particularly with regard to working in a siding.

Therefore, the RSC believe it would beneficial to brief appropriate IÉ personnel on the methods and requirements of working in a siding. This briefing would not certify as staff as competent to manage this type of work. However, it should ensure personnel have a general appreciation of how this work should be undertaken.

11/12-PII-AR 2: IÉ should brief appropriate Infrastructure maintenance staff on the requirements for establishing a SSOW in a siding
This briefing should include establishing protection in accordance with Section T Part Four of the Rule book and Red Zone working. For each process the briefings should identify.

- Key Staff
- Competence requirements
- Equipment requirements

PCD: 3 months from final issue of report.

4.3.2. Points Operator / Shunter

The Points operator had undertaken a PTS course in February 2012 and was therefore suitably qualified to be in the vicinity of the depot sidings.

Documents were requested from IÉ to establish how Points operators' in depots sidings are assessed with regards to the shunting of vehicles and if the Points operator involved in this incident was compliant with these requirements on the 3rd July 2012.

Railway Safety Standard 20b (issue 2.02 – 20/09/09) Training and assessment of CME personnel authorised to shunt traction units is currently used to the maintain Points operators competence with regards to shunting. This document was effective from 2009 and there was no evidence that RSS 20b was formally withdrawn and replaced with another suitable standard to monitor this competence at the time of the incident.

Section 6 of RSS 20b addresses continuing monitoring and the following elements are identified:

5. Continual assessment

6.1. All CME personnel authorised to shunt under this standard will be subject to a programme of continual assessment based upon a biennial assessment cycle. The assessment must be conducted by a competence assessor and will include:

- *Assessing an individual's performance by observation of performed duties against relevant Iarnród Éireann competence standards.*
- *Questioning techniques to test knowledge evidence, which supports the inference of competence.*

6.2 During a practical assessment the competence assessor is also required to assess underpinning knowledge in rules, regulations and operating instructions, including methods of working relative to the performance criteria and range statements of the performance standards. A record of this will be retained on the individual's personal file.

6.3 All such assessment must be recorded using the relevant assessment documentation, which is attached as appendix F1.

6.4 As a minimum, during every biennial assessment cycle, each CME shunter must be practically assessed at least twice.

Assessment documentation was provided by IÉ demonstrating how the Points operator had been assessed from the beginning of 2010 to the date of the incident. By reviewing this information the RSC identified that the bi-annual assessment cycle was being adhered to with regards to the number of assessments. However, it was noted that none of these assessments were undertaken using Appendix F1 of RSS20b.

Finding 5: Bi-annual Points operator assessments were not undertaken using Appendix F1 of RSS 20b.

11/12-PII-miNC 2: Non-compliance with section 6.3 of RSS 20b
Bi-annual assessments of the Points Operator were not undertaken biannually using Appendix F1 of RSS 20b.

Discussions with IÉ personnel to establish why Appendix F1 was not being used, revealed that staff undertaking the assessments found the shunter monitoring form in RSS 6 (Training, Assessment and Monitoring of staff engaged in shunting duties) used in conjunction with the 'Assessment Portfolio Record Sheet' (APRS) to be more appropriate. RSS 6 was effective from 2006 and used to assess the competence of staff undertaking shunting duties in the Operations department and would therefore be relevant to assess the ability of someone to undertake shunting duties. It is not within the scope of this report to assess which process would be more suitable for assessing shunter competence. However, it is relevant to state that both RSS 6 and the APRS address the areas relevant to this report, specifically shunting through hand points.

5.1. Actions of Depot Personnel

5.1.1. Points Operator

The CME Safe System of work for Drogheda depot (CME-FSS-SS-150) defines that the Shunter / Points Operator is responsible for the:

- *Safe movement of trains entering and exiting Drogheda Location.*
- *Safe movement of trains within Drogheda Location.*
- *Safe movement of trains crossing points.*
- *Safe movement of trains going to Wheel Lathe.*
- *Safe movement of trains going to and from Slab.*
- *Safe movement of trains in and out of Main Shed.*
- *Safe movement of trains going through Train Wash.*

These duties are undertaken in accordance with Section J of the Rule Book "Shunting".

On the morning of Wednesday 4th July the Points Operator agreed, with the Platform Controller, the movement of Unit 22012 from Platform 1 into the depot sidings. Immediately after doing this the Points operator called the CTC signaller to authorise the move. During these conversations the Points operator was inside Drogheda depot and as this individual had already set the points for this move prior to going into the depot did not believe there was a need to return to the points again. Therefore, the route was not checked immediately prior to the authorisation of this movement. The

Points operator then made his way from inside the depot to the siding. However, prior to the Points Operator arriving on site the movement had taken place and the train had derailed at HP7.

Finding 6: The movement of unit 22012 was not controlled in accordance with the following clauses of section J of the Rule Book:

1.2 – Control of movements

- Before shunting starts, the Shunter and Driver must reach a clear understanding as to :
    - What movements are required
    - How those movements will be controlled
- The driver must then work ONLY to the instructions of the Shunter and must not make any movement unless authorised by the Shunter

4.3.2 – What you [*the shunter*] must do before each movement

- Inspect all hand points facing the movement
- Ensure they are correctly set and properly fitting

11/12-PII-miNC 3: Non-compliance with section J clauses 1.2 and 4.3.2 of the Rule Book with regards to controlling shunting movements
The movement of the train consist was not undertaken in accordance with clauses 1.2 and 4.3.2 of section J of the Rule Book.

5.2. Communication between CME and CCE

During the interview process staff from the CME and CCE departments were questioned regarding processes to manage the interface between the two departments. It was evident that to a large degree the planning of work relied on a small network of staff who would contact each other directly to plan works. For example on the 3rd July 2012 the CME safety and facilities manager contacted the PWI directly to request an examination of HP 7. This work was carried out by the PWI who immediately planned rectification work for that night and contacted the Safety and Facilities manager to inform them of this, who subsequently undated the Depot Operational Report (DOR).

DOR's are used by each Duty Shift Manager (DSM) in CME depot's to log information regarding the shift they have completed and to ensure the DSM beginning the next shift is aware of the current depot operational situation.

A section of the DOR of the day shift of 3rd July 2012 is shown in Figure 5.2-a. It can be seen that in the 'Notes' section Hand-points 7 are identified with the comment that PWI *"will be here tonight to attend points"*.

Phone calls		
Notes	HVACs Handpoints 07 Unit 06	2 x HVAC's delivered onto Rd 10 Sth this evening for [redacted] [redacted] will be here tonight to attend points. Please have on Rd 08 Sth For morning.
Safety / Facilities	Oil Vac Pump	1st one on Rd 09 nth not working.
5S House Keeping	Slab Shed Power washing 5S Housekeeping Report completed Canteen	

5.2-a Section of DOR from day shift for 03rd July 2012

The DSM for the night shift of the 3rd July 2012 had no further information on the work that would undertaken or how this would be done and therefore the CME staff under their control were not briefed on this at the start of the shift. In the interview process it was stated that at approximately 00:30 hrs the DSM was informed by the Points operator that a possession was due to be taken after the last train was in. The Points Operator relayed this information after they had spoken to the PICOP earlier in the shift.

During the interview process it was stated that the depot management staff often receive an e-mail regarding possessions to be taken by the infrastructure maintenance staff. However, this process is not formalised and this was not done on the 3rd July due to the work being undertaken at short notice.

The RSC consider that informal communications between CCE and CME staff should have been supported by formal planning processes. This is because statements given by a number of CME staff who were affected by the work demonstrated they were unclear of the arrangements made for the permanent way worksite (HP7), who was responsible for it, and what work was going to be undertaken.

Finding 7: CME management personnel received insufficient information regarding the establishment of a worksite during the night shift on the 03rd July and therefore were not clear on how this may affect the depot.

11/12- PII-AR 3: IÉ should review the processes for planning maintenance work in depot sidings
This review should include:

- Indentifying Key Staff involved
- Assessing if there is a requirement for formal communications/notices

PCD: 3 months from final issue of report.

5.3. Point handle maintenance

The hand points involved in this incident were Cogifer spring assisted manual points. It is stated in section 3.3 of this report that during the PWI inspection it was noted that the handle was broken and the points were being operated with a bar and scotch. The interview and evidence collection process indentified that the common fault trend, across all points in the yard, is the pull handle breaking and having to be re-welded. Hand Points 7 had been subject to previous repairs with welding work taking place on the handle in the weeks prior to the incident.

It was also stated that until the handle fault was rectified operators would have to use the points in a degraded condition, which at HP7 involved using a bar to move them across. However, there was no evidence that training is provided to CME staff to enable them assess or use point mechanisms when in a degraded condition.

Finding 8: Hand points 7 (HP7) was subject to a recurring fault with the handle. This lead to CME staff having to operate the hand points in a degraded condition.

11/12 PII-AR 4: IÉ should undertake review of Cognifer spring assisted manual points

IÉ should undertake a review of Cogifer spring assisted manual points. This review should include the following:
1) Root cause analysis of handle failures
2) Assessment of the need for supporting training or process if the points are to be used in a degraded condition

PCD: 6 months from final issue of report.

5.4. Summary of findings & outcomes

This Post Incident Inspection has identified a number of findings and inspection outcomes. They include three minor non-compliances and four 'Acton Required' items. The table below summarise the inspection outcomes.

Table 5.4-a Summary of inspection outcomes

Number	Area	PCD
11/12-PII-miNC 1	Non-compliance with section B clause 2.2 and 3.1 of the Rule Book with regards to working on or near the line	N/A
11/12-PII-miNC 2	Non-compliance with section 6.3 of Railway Safety Standard 20b	N/A
11/12-PII-miNC 3	Non-compliance with section J clauses 1.2 and 4.3.2 of the Rule Book with regards to controlling shunting movements	N/A
11/12-PII-AR 1	IÉ should review the procedures to notify staff of alterations to possessions	12 months
11/12-PII-AR 2	IÉ should brief appropriate Infrastructure maintenance staff on the requirements for establishing a Safe System Of Work in a siding	3months
11/12-PII-AR 3	IÉ should review the processes for planning maintenance work in depot sidings	3months
11/12-PII-AR 4	IÉ should undertake review of Cognifer spring assisted manual points	6 months

In the context of this report it should be noted that, due to other possession related incidents at the beginning of 2012, on the 24th February 2012 in accordance with the Railway Safety Act 2005 the RSC informed IÉ of their intention to serve an improvement notice. The improvement notice was served on the 20th March 2012 and included a requirement for IÉ to undertake a "root and branch review of its arrangements for the management of possessions".

In addition to this a further incident at Lavistown Level crossing near Kilkenny, related to possession management, lead to the RSC initiating a Post Incident Inspection in April 2012. One Action required item from the Lavistown PII has been referenced in this report.

6. Relevant actions already taken or in progress

On the 8th November 2012 IÉ advised the following;

1. Disciplinary proceedings are being progressed against the Permanent Way member of staff. He has not been allowed to carry out Safety Critical Protection activities since the incident.
2. CME SMS 011(CME persons authorised to shunt) has been issued on 3/10/12.
3. Review of works planning has been initiated in the CCE Dept.
4. Staff in Drogheda Depot have been briefed on the correct position of the Cogifer points handle when not in use.

7. Next Steps

In accordance with section 76 of the Railway Safety Act, IÉ shall submit an Improvement Plan (Plan) to the RSC to address the non-compliances identified in this report.

IÉ shall submit the plan to the RSC, by a prescribed date, clearly defining how it intends to rectify the non compliances identified and provide a timescale for doing so. The RSC will review this submission and subject to it being satisfactory will track its implementation.

Similarly, IÉ should also produce a plan to address the action required items made in the report which will also be tracked by the RSC.