

# Post incident inspection following unsafe occurrences at Lavistown Level crossing. 29-31 March 2012



Issue	Prepared by	Checked by	Issue date
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## Executive Summary

On Friday 30<sup>th</sup> March 2012 at 00:56 On-Track Machine (OTM) – Train ID Y741 - was granted permission to pass WL 34 at danger and enter into a possession between Lavistown Junction and Waterford. On approach to the possession limits the OTM passed through Lavistown level crossing on the Kilkenny to Waterford line with the barriers (protecting the public highway) in a raised position. CCTV footage obtained by the Railway Safety Commission (RSC) and information obtained from interview found there was insufficient evidence to identify that a suitable traffic control system was in place to allow this movement.

Similar actions occurred as the OTM left the possession at 04:18 on the 30<sup>th</sup> March and again when the OTM entered the possession on the 31<sup>st</sup> March at 00:12.

The RSC was notified of the occurrence by Iarnród Éireann (IÉ) at 11:35 on Tuesday 03<sup>rd</sup> April. 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 reviewed the salient standards and procedures relating to possession management, level crossing control, 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 one (1) major non-compliance, a system failure in the implementation of an IÉ internal standard. This non-compliance relates to:

- Iarnród Éireann’s monitoring of On Track Machine (OTM) operators competence

Additionally five (5) minor non-compliances (miNC) indicating sporadic lapses in the implementation of the IÉ’s Safety Management System (SMS) have been identified. These minor non-compliances are shown in Table1.1:

**Table 1-1 - List of Minor Non-Compliances**

Number	Area
<b>06/12-P11-miNC 1</b>	Non-compliance with section T3 clause 11.3.2 of the Rule Book Arrangements for absolute possession of the line
<b>06/12-P11-miNC 2</b>	Non-compliance with section T3 11.3.4 of the Rule Book Arrangements for absolute possession of the line
<b>06/12-P11-miNC 3</b>	Non-compliance with section D. 3.2.4 of the Rule Book “passing over level crossings”
<b>06/12-P11-miNC 4</b>	Non-compliance with section T3 of the Rule Book Arrangements for absolute possession of the line
<b>06/12-P11-miNC 5</b>	Non-compliance with Rule Book section B clause 1.2 and Section 4.2 of CCE-SMS-007

In addressing the major non-compliance the RSC has already been in dialogue with IÉ, while in relation to 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 eight (8) '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 1-2 - List of Action Required items**

<b>Number</b>	<b>Area</b>	<b>PCD</b>
<b>06/12-P11-AR 1:</b>	IÉ should review instructions given to IÉ personnel with regards to Fouling Points	9 months
<b>06/12-P11-AR 2:</b>	IÉ to review procedures used by signallers to establish a possession	6 months
<b>06/12-P11-AR 3:</b>	IÉ to review instructions controlling CCTV level crossings in possessions	12 Months
<b>06/12-P11-AR 4:</b>	IÉ to review procedures for ensuring possession management is undertaken in accordance with the Rule Book	6 months
<b>06/12-P11-AR 5:</b>	IÉ should review the processes controlling the briefing of staff prior to possessions	12 months
<b>06/12-P11-AR 6:</b>	IÉ should develop a process to deal with known non-compliances	6 months
<b>06/12-P11-AR 7:</b>	Re-Brief staff on the reporting process of incidents	3 months
<b>06/12-P11-AR 8:</b>	IÉ safety department should undertake independent review of safety communications for maintenance personnel	6 months

In the context of this report it should be noted that in 2012 three other possession related incidents have occurred on IÉ infrastructure. The RSC were of the opinion that these incidents demonstrated that in the area of possession management IÉ had failed to implement its Safety Management System (SMS) in contravention of Section 47 of the Act. Therefore on the 24<sup>th</sup> 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 20<sup>th</sup> March 2012 and included a requirement for IÉ to undertake a "root and branch review of its arrangements for the management of possessions".

Due to the nature of the incidents analysed, Section 5 of this report has highlighted issues pertaining to possession management. The RSC believe IÉ should ensure that the areas where actions and non-compliances have been identified, in this report, are addressed in the root and branch review of possession management previously requested by the RSC.

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## **1. Key Facts**

### **1.1. Key facts about the occurrences on Thursday 29<sup>th</sup> / Friday 30<sup>th</sup> March at Lavistown Junction**

On Friday 30<sup>th</sup> March 2012 at 00:56 On-Track Machine (OTM) – Train ID Y741 - was granted permission, by the CTC Waterford and Tralee line signaller, to pass WL 34 at danger and enter into the possession between Lavistown junction and Waterford. On approach to the possession limits Y741 passed through Lavistown level crossing on the Kilkenny to Waterford line with the barriers (protecting the public highway) in a raised position. The Level Crossing Controller in the Athlone crossing control centre noted this occurrence and informed the controlling signalman in Central Traffic Control (CTC). The controlling signalman contacted the driver, requested that they “bring the machine to a stop” and asked if there was “anybody protecting the gates”. At this point the driver informed the signalmen that there were two people protecting the gates. The OTM then proceeded onto the worksite. Subsequent CCTV footage obtained by the RSC and information obtained from interview does not corroborate that a suitable traffic control system was in place to allow this movement to take place.

On leaving the possession CCTV footage again shows the OTM travelling through Lavistown level crossing with the barriers raised. This occurrence was not reported to the signalman and the driver of the OTM proceeded to the siding in Kilkenny.

### **1.2. Key facts about the occurrences on Friday 30<sup>th</sup> March / Saturday 31<sup>st</sup> March at Lavistown Junction**

On entering the possession on the 31<sup>st</sup> March 2012 at 00:10 OTM Y741 was granted permission to pass WL 34 at danger and enter into the possession between Lavistown junction and Waterford. On approach to the possession limits the OTM passed through Lavistown level crossing on the Kilkenny to Waterford line with the barriers (protecting the public highway) in a raised position.

This incident was not reported to the CTC control and the machine proceeded in the possession worksite.

## **2. Purpose of the Post incident inspection (PII)**

The Railway Safety Commission (RSC) is concerned with the prevention of accidents and incidents. All three occurrences described in section one could have, in slightly different circumstances, resulted in a catastrophic accident. 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).

## 2.1. 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 training and competence of OTM operators.
- Systemic failures in the training and competence of CTC Signallers and Level Crossing Control Operators.

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

## 3. The Incident

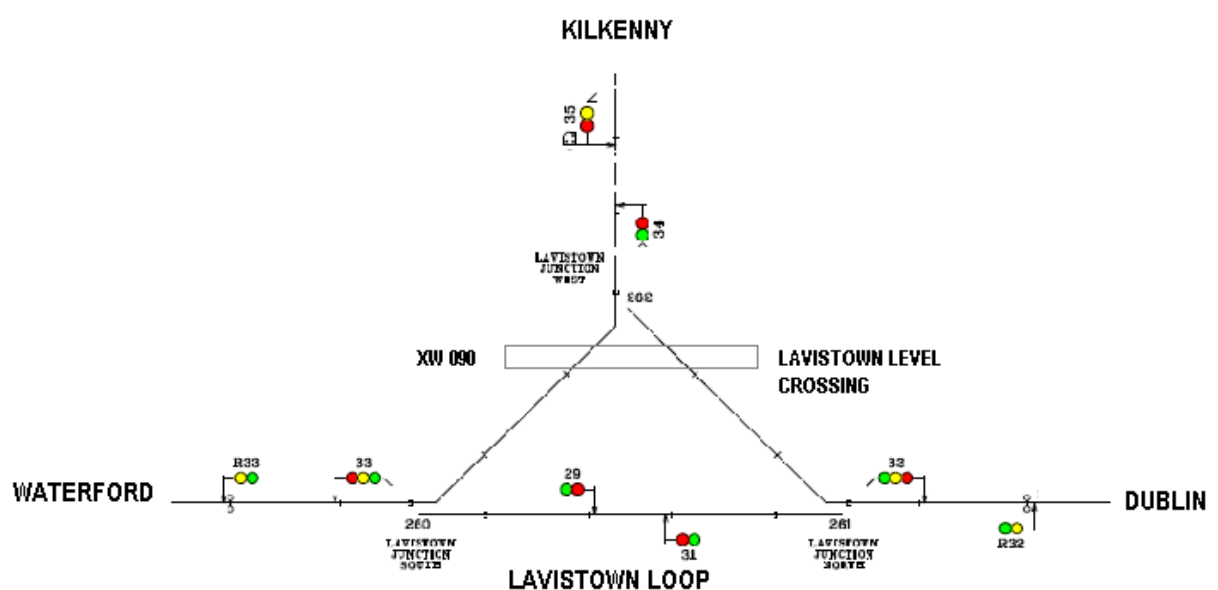
### 3.1. Parties Involved

- 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 management of IÉ OTM drivers/operators.

### 3.2. Location

The incidents occurred on the Kilkenny - Waterford route, this is single track line which diverges from the Dublin Kilkenny line at Lavistown Junction. There is also a connecting loop between the two lines (shown in Figure 3.2-1).

Lavistown Level crossing (XW 090) dissects both the Kilkenny-Waterford and Dublin-Kilkenny lines. The crossing is located at 30m 1210yds on the Kilkenny-Waterford line and the linespeed at this location in normal service is 25mph.



3.2-1 Schematic of track layout at Lavistown Junction

### 3.3. The Equipment

Lavistown level crossing is designated as a Station controlled CCTV full barrier crossing and its signals are controlled by the Signaller, meaning that in normal service to obtain a clear (proceed) aspect at WL 34, WL 33 or WL 32 the network interlocking requires the signaller to request the route (ensuring no conflicting movements) **and** the Level Crossing Controller to confirm that the barriers are lowered, detected and confirm that the crossing is clear of obstructions.

The signalling for this crossing is controlled from CTC in Connolly (Dublin) and the Level Crossing Controller is located in Athlone level crossing control centre.

It is worthy of note that unlike mid-section CCTV level crossings, Station crossings do not have additional signals in advance operated by the Level Crossing Controller. This means that unlike mid-section CCTV level crossings the signals protecting Station crossings are primarily controlled by the signaller.

At this point it is important to state that when the incidents took place at this crossing these movements were controlled using the “Manual Initiation” function. This is because a possession between had been granted between Lavistown and Waterford West and, in addition to this, the movements involved an OTM which is not guaranteed to operate track circuits.

The General instructions for the operation of electronic control panels states the following regarding the Manual initiation function:

- *Purpose*  
To permit the requesting of a crossing to close for inspection cars and permanent way mobile track machines
- *Manual Initiation*  
Manual Initiation means the Signaller requests the closure of the crossing by operating the level crossing **INITIATE** function having selected the particular level crossing.

Station Level Crossings are represented on the signalling console in CTC by a vertical line intersecting the track line. The colours of the line, which will indicate the status of the crossing, where applicable, are as follows:

#### 3.3-1 Signaller console display status indications

‘Station type’ <b>CCTV</b> designated level crossings	<b>Red</b>	Crossing closed to rail traffic, open to road traffic.
	<b>Yellow</b>	Crossing in intermediate state, i.e. neither open nor closed. (Including <b>Emergency Alert</b> )
	<b>Green</b>	Crossing clear for rail traffic, closed to road traffic. ( <b>Crossing Clear</b> pushbutton has been pressed)

### 3.4. The Vehicle

The Vehicle (Train ID: Y741) involved in the incidents was an On Track Machine (OTM) consisting of a Plasser 09-16 continuous action plain line tamper with a Dynamic Track Stabiliser (DTS) trailer attached (See Picture 3.4-1). The vehicle was not equipped with an event recorder (TELOC). The date of manufacture is 1994. The machine consists of 3no. bogies and 7no. axles. The vehicle length is 17.1m and the trailer length is 10.8m.

No evidence was provided to indicate that there were any significant faults with the vehicle that contributed to the incidents that are the subject of this report



3.4-1 Plasser 09-16 continuous action tamper

## 4. The post Incident Inspection

### 4.1. Sources of evidence

1. Recordings of calls establishing the Lavistown Junction to Waterford possession and relevant movements over the Lavistown CCTV level crossing (XW 090) for the following dates:
  - 27/03/12 ( Tuesday / Wednesday possession)
  - 28/03/12 ( Wednesday / Thursday possession)
  - 29/03/12 (Thursday / Friday possession)
  - 30/03/12 (Friday / Saturday possession)
2. CCTV footage of all movements over Lavistown CCTV level crossing (during the hours of each possession) for the same dates as point 1.



3. Copies of train register entries relevant to the Lavistown Junction to Waterford possession and relevant movements over the Lavistown CCTV level crossing (XW 090) for the same dates as point 1.
4. Documentation that prescribed the applicable rules for movements of OTM's:
  - In a possession
  - Over a level crossing with barriers raised
5. Standards relevant to the signallers actions
6. Standards relevant to OTM operator competence
7. Training and competence records for the possession management staff involved.
8. Written statements from the staff relevant to these possessions
9. Interviews

#### 4.2. 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 are listed below.

- |                                      |  |   |
|--------------------------------------|--|---|
| • The OTM operator                   | • A District Traffic Executive (Athlone)         | • Operations Engineering Safety Manager |
| • The OTM 2 <sup>nd</sup> operator   | • Engineering Competency manager                 | • Head of Engineering Safety            |
| • 3 CTC Signallers (Mainline)        | • Infrastructure Planning and Production manager |   |
| • A District Traffic Executive (CTC) |  |   |

#### 4.3. Overview of evidence – Sequence of events

In this section we will use the evidence provided to the RSC to give an overview of events in the following possessions:

- 29/03/12 (Thursday / Friday possession)
- 30/03/12 (Friday / Saturday possession)

Please note that this evidence is predominately taken from CCTV footage and call downloads from CTC Connolly. Additional interactions that occurred between IÉ personnel are discussed further in section 5 "Facts, analysis, findings and outcomes".

Times are given primarily using call log evidence. Where other evidence would suggest a contradictory time, for example CCTV evidence, the time has been given in brackets.

#### 4.3.1. 29<sup>th</sup> / 30<sup>th</sup> March 2012 – Thursday / Friday Possession

- 00:48 the PICOP contacts CTC to obtain a possession with the limits, Fouling Point (FP) 262 and WL 29 to FP19.
- 00:49 Signaller (CTC) contacts the signaller located in Waterford to ensure all limits of possession are clear and the grants possession at 00:50. At this point the PICOP informs the signaller that he has a tamper to come out of Kilkenny into the possession. The PICOP states that “whenever he rings you he can come on into the possession”.
- 00:50 Signaller informs the Level Crossing Controller in Athlone that a possession has been granted to the PICOP at 00:50 between Lavistown and Waterford West.
- 00:51 The driver of Y741 contacts the signalman to inform him that the OTM has the disc and would like to proceed in to the possession between Lavistown and Waterford. Signaller instructs driver to proceed to WL 34.
- 00:56 The driver calls the signaller and requests to enter the possession between Lavistown and Waterford. The OTM is given permission to pass WL 34 at danger and proceed to the Flag-man and obey his instructions. The signaller instructs the driver to stop short of all gates and contact the crossing control centre if he needs them lowered.
- At 00:59 (00:55) Y741 can be observed passing through XW 090 (Shown in Figure 4.3.1-1). The presence of IÉ staff at the crossing cannot be seen in this footage.



4.3.1-1 Image from CCTV at XW 090

- 00:59 Level crossing control centre operator contacts CTC signaller and states that the machine has gone through with the gates in the air.
- 01:00 Signalman contacts driver. First the driver is instructed to bring their machine to a stop, then the following conversation took place:

Signalman - “driver were you talking to the flag man or anybody”

Driver – “we were indeed”

Signalman – “and what was the story he just told you to go straight through Lavistown was it”

Driver – “That’s right”

Signalman – “was the flag man on the gates”

Driver – “the flag man is in position”

Signalman – “yeah but was there anyone protecting the gates”

Driver – “There is yeah, there’s two guys there”

Signalman – “there was two guys protecting the gates was there”

Driver – “Yes”

The driver goes on to say that he knows the two men on the gates and the signaller allows the machine to proceed.

- 01:02 The signaller then relays the message to the Level Crossing Controller in Athlone that there were men on the gates. The controller states that they cannot see anyone on their screen. To which the signaller replies that he has to take the driver at his word.
- The machine proceeds into the possession and undertakes the preplanned tamping work.
- 04:13 The OTM driver contacts CTC to inform the signaller that the vehicle is stopped at WL 33 and requests permission to clear the possession. The signaller informs the driver that they are O.K to proceed out of the possession to WL 35.
- 04:18 (04:14) The driver proceeds past WL 33, past the possession limit at FP 262 and through XW 090 again with the barriers in the raised position.

#### **4.3.2. 30<sup>th</sup> / 31<sup>st</sup> March 2012 – Friday / Saturday Possession**

- 23:55 Signaller contacts Waterford box to ensure all limits of the possession are clear and then grants possession at 23:55. At this point the PICOP informs the signaller that he has a tamper to come out of Kilkenny into the possession. The PICOP states that the tamper has permission to come into the possession “whenever he rings you there”.
- 23:56 Signaller informs Crossing Controller in Athlone that a possession has been granted to the PICOP at 23:55 between Lavistown and Waterford West.
- 00:02 The driver of Y741 contacts the signalman to inform him that the machine has the disc and would like to proceed to WL 34.
- 00:10 the driver calls the signaller and requests to enter the possession between Lavistown and Waterford. OTM is given permission to pass WL 34 at danger and proceed to the Flag-man and obey his instructions. The signalman instructs the driver to contact the gate keepers if he needs the gates lowered.
- 00:12 level Crossing Controller contacts CTC signalman and states that they have received initiation at Lavistown. Controller asks whether the signaller wants him to lower the barriers. Signaller states that it’s up to the driver to contact the controller now as he is in a possession.
- At 00:12 (00:08) Y741 can be observed passing through XW 090 with the barriers in a raised position (although an attempt to lower the barriers can be observed). Again, the presence of IÉ staff at the crossing cannot be seen in this footage.
- This action was observed by the hand-signaller at the Lavistown end of the site. Initially this individual believed a fault had occurred with the barriers and contacted a hand-signaller at the other end of the possession asking them to inform Signalling maintenance personnel.

- 00:29 A member of SET staff contacts the Level Crossing Controller in Athlone and asks if they were o.k. with the barriers at Lavistown. The Level Crossing Controller states that he didn't get the barriers down in time and the machine went through just as I was about to lower them. The member of SET staff states that this is nothing to do with him and asks to discuss Ballyreddin crossing which he wants to sign out.
- 02:07 The same member of SET staff, as previous, contacts the Level Crossing Controller in Athlone and undertakes testing work at Ballyreddin XW 100. Once this work is complete this individual goes onto discuss Lavistown level crossing and asks if the controller wants him to inform the OTM staff of any actions to take when leaving the possession. The Controller asks the SET member of staff to inform the OTM crew of the need to contact him prior to passing over the level crossing.
- 03:12(03:08) The same member of SET staff, as previous, contacts the Level Crossing Controller Athlone to request that the barriers are lowered for the OTM.
- 03:14 OTM driver of Y741 contacts signaller in CTC and requests permission to pass WL 33 and clear the possession. Signaller states that the driver is clear to proceed to WL 34.
- 03:20 (03:16) Machine passes through crossing with barrier in the correct position.
- 03:22 Level Crossing Controller contacts SET member of staff to confirm that the OTM is clear of the possession.
- 03:24 the OTM driver contacts CTC to inform the signaller that the vehicle is stopped at shunt disc WL 33. Signaller gives permission for the driver to pass the signal at danger and proceed into the sidings.

## 5. 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;

<p><b>06/12-P11-AR 1 - "unique supervision activity number for the year"/"year"- "supervision activity"- "counter with prefix MaNC, miNC, AR or Sfi"</b></p> <p>Title (High level descriptor of identified issue)</p> <p>Detail as required</p> <p><b>PCD:</b> (Planned completion date only specified for an action required item)</p>
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*Table 5-1: Action Required Format*

### 5.1. Possession management

The management of possessions requires both the signalling control staff and on track possession management personnel to undertake their duties in accordance with the Rule Book and supporting standards and guidelines. These items will be addressed in this section of the report. The management of a possession also requires clear and unambiguous Safety Critical Communications between the parties involved and this is discussed further in sections 5.3.

#### 5.1.1. Actions of CTC personnel

The limits of the possession were published in the weekly circular (WC.3499 – 01/04/2012) as;

- FP 262
- WL 29
- FP 19

FP is the acronym for Fouling Point (FP) which can be used in the weekly circular as a possession limit in accordance with the Section T3 clause 9.4.2 of the Rule Book. However, instructions for the use of

fouling points in the Rule Book are relatively brief and many of the IÉ personnel interviewed stated that they found the use of FPs could cause confusion with regards to the limits of the possession. Interviews with a number of IÉ staff revealed that there were different interpretations as to where a fouling point is located. It was identified that a definitive list of fouling point positions or methods of establishing their location on site is not stated in the Rule Book.

The Rule Book is also ambiguous with regards to the direction points at the possession limit are set and the protection they should provide.

Section T3 11.2.1 of the Rule Book states that when arranging the possession signallers must:

- Arrange for all signals leading to or across the possession to be placed to danger and all points to be placed in the *proper position* for the possession.

During the interview process signalling staff stated that they would use the most appropriate signal to protect a possession (in this instance WL34). The points at the possession limit (FP 262) would then be set to the position requested by the Person In Charge Of the Possession (PICOP) and not change them unless requested to again by the PICOP. This could mean that although a “reminder appliance” would be placed on the points, if the points (at the possession limit) were set for a machine to be allowed into the possession they may remain in this position for the duration of the work, unless requested otherwise by the PICOP. The RSC believe that this is a misinterpretation of clause T3 11.2.1 and by managing the points in this manner they are not being used to provide additional protection, as intended by the rulebook. This is an example of how ambiguity in the Rule Books’ management of fouling points may create risk and should be addressed by IÉ.

**Finding 1:** Interviews with IÉ personnel identified uncertainty with regards to instructions given for the use of fouling points limits. Particular areas of note were identifying the location of fouling points and the controls required for possession management.

**06/12-P11-AR 1:** IÉ should review instructions given to IÉ personnel with regards to Fouling Points  
IÉ should undertake a review to identify the areas where personnel have uncertainty with regards to instructions for the use of fouling points. IÉ should then enhance instructions in accordance with the findings of this review.

**PCD:** 9 months from final issue of report (3 months for review and 6 months for full implementation of enhanced instructions).

With regards to the occurrences on the 30<sup>th</sup> and 31<sup>st</sup> March establishing the location of the possession limits is essential as the signaller has a responsibility for the area between this point and the location where the detonators have been placed (usually 400m beyond the fouling point).

In the interview process it was established that the signaller knew the limit of the possession on the Kilkenny Waterford line was FP 262. However, the signaller was not aware, at the time of the incident, that Lavistown Level crossing was within the area between FP 262 and the detonator

protection of the possession. This meant that the signaller did not contact the Level Crossing Controller to lower the barriers at XW090 prior to authorising the Y741 to pass WL 34 at danger at

- 00:56 on the 30<sup>th</sup> March 2012
- 00:10 on the 31<sup>st</sup> March 2012

**Finding 2:** CCTV footage and Call log evidence demonstrated the CTC signaller actions that occurred during the possessions of the 29<sup>th</sup>/30<sup>th</sup> and 30<sup>th</sup>/31<sup>st</sup> March were non-compliant with section T3 clause 11.3.2 of the Rule Book.

**06/12-P11-miNC 1:** Non-compliance with section T3 clause 11.3.2 of the Rule Book Arrangements for absolute possession of the line

The signaller's actions did not ensure that the line was clear and safe for movements in accordance with section D. In addition to this, the driver was not told to proceed cautiously to the detonators.

On the 31<sup>st</sup> March 2012 when contacted by the driver of Y741 for permission to pass WL 33 the signaller informed the driver that he was in a possession and the next signal that the signaller controlled was WL 35. It is correct that normal signalling rules do not apply during a possession and the OTM did not require authorisation from the signaller to pass WL 33 at danger. However, concerning movements from the possession, section T3 11.3.4 of the rulebook states, that the signaller must "ensure the line is clear and safe for the movement in accordance with Section D" [of the Rule Book]. There was no call log evidence to identify that the communications between the driver and the signaller had established that the line was "clear and safe for movement" and again the signaller did not arrange for the barriers of XW 090 to be lowered. On leaving the possession the machine again passed through XW 090 with the barriers in a raised position.

**Finding 3:** CCTV footage and call-log evidence demonstrated the CTC signaller actions in relation to the possession of the 29<sup>th</sup>/30<sup>th</sup> March were non-compliant with section T3 clause 11.3.4 of the Rule Book.

**06/12-P11-miNC 2:** Non-compliance with section T3 11.3.4 of the Rule Book Arrangements for absolute possession of the line

The signaller's actions did not ensure that the line was clear and safe for movements in accordance with section D.

It was identified that the signaller interviewed understood the need to reference the Passing Signals at Danger Charts in accordance with section D of the Rule Book for situations like Pilot working. However, the use of this chart when authorising signals to be passed at danger for movements in and out of a possession is less clear. The Passing Signals at Danger Charts for WL 33 and WL 34 are shown in figure 5.1.1-1.

Part 3 - Passing Signals at Danger Charts for Waterford Line PC ECP

Station	Signal No.	Route No.	Destination	Signals to be ENTRANCE BLOCKED	Signals to be EXIT BLOCKED	Points to be Set, Detected and Pegged NORMAL and a Points Block Applied	Points to be Set, Detected and Pegged REVERSE & a Points Block Applied	
	Column 1	Col. 2	Column 3	Column 4	Column 5	Column 6	Column 7	
<b>Kilkenny</b>	WL32	2M	35	34	34	261	262	
	<b>Other Requirements:</b>				<ul style="list-style-type: none"> <li>Requires <b>Highrath</b> Level Crossing Closed to the Public.</li> <li>Requires <b>Lavistown</b> Level Crossing Closed to the Public.</li> </ul>			
	WL33	1M	35	34	34	260, 262	---	
	<b>Other Requirements:</b>				<ul style="list-style-type: none"> <li>Requires <b>Lavistown</b> Level Crossing Closed to the Public.</li> </ul>			
	WL33	2M	31	29	29	---	260	
	WL34	1M	168 Muirne Bheag	32	32	261	262	
	<b>Other Requirements:</b>				<ul style="list-style-type: none"> <li><b>Working of Single Lines by Pilotman (WSP)</b></li> <li>Requires <b>Highrath</b> Level Crossing Closed to the Public.</li> <li>Requires <b>Lavistown</b> Level Crossing Closed to the Public.</li> </ul>			
	WL34	2M	181 Ballyhale	33	33	260, 262	---	
<b>Other Requirements:</b>				<ul style="list-style-type: none"> <li><b>Working of Single Lines by Pilotman (WSP)</b></li> <li>Requires <b>Lavistown</b> Level Crossing Closed to the Public.</li> </ul>				
WL35	1M	47 ●	38, 41	38, 41	264, 265, 267	---		
WL35	2M	48 ▷ Platform 2	38, 41	38, 41	264, 265	266, 267		
via 264 pts Normal, 267 pts Reverse								

WL ECP - Part 3 - PS&D - April 2011.doc - Page - 9 of 13 - Issue No.: 4 - Date of Issue: 7<sup>th</sup> April 2011 - Valid from: 10<sup>th</sup> April 2011 - Waterford Line PC ECP

Table 5.1.1-1 - SPAD Chart for Waterford line

Table 5.1.1-1 clearly shows that the closing of Lavistown level crossing is required for both WL 33 and WL 34. However, in a possession the signallers stated that they would only control up to the possession limits (location of detonator protection). It should be noted that the signallers do not have details of the location of fouling points or level crossings, therefore whether a level crossing is within or outside a possession can only be established through communications with the possession staff (e.g. PICOP).

**Finding 4:** Signalling staff interviewed did not have sufficient information available to ascertain whether Lavistown Level Crossing XW090 was inside of the possession limits.

**06/12-P11-AR 2:** IE to review procedures used by signallers to establish a possession  
 IE should review the procedures used by signallers when granting a possession. The review should address the procedures used and the information available to signallers.  
 This review should ensure that signallers can establish if there are any level crossings between the protecting signal and the point of detonator protection of the possession.  
**PCD:** 6 months from final issue of report

Call-log evidence also demonstrates that the signaller was unaware that, due to XW 090 being a station signal controlled level crossing, there may be a requirement on them to request for the barriers to be dropped by Athlone Crossing Centre.

During the interview process the management of station signal controlled and mid-section level CCTV level crossing was discussed. It was identified that the Rule Book sections G and T identify



fundamental operational instructions (with regards to possessions). Additionally comprehensive equipment user instructions have been issued in the form of Signaller General Instructions and Crossing Control Centre Instructions. However, many interviewees discussed “grey area” with regards to instructions controlling the interface between the Signaller and the Level Crossing Control Centre Operators, particularly with regards to possessions and degraded operation.

It was identified that instructions to manage area’s like Station signal level crossings were briefed to signalling and level crossing control staff in the Athlone control centre. However, these were not standardised and therefore not issued to signalling staff in other locations, e.g. CTC. It was also identified that although the process for managing movements through mid-section signal level crossings were commonly understood, the procedure again was not standardised and stated in an appropriate instruction.

**Finding 5:** Instructions managing CCTV level crossings during possessions are not standardised with regards to the interface between Signallers, Level Crossing Controllers and possession staff.

**06/12-PII-AR 3:** IEÉ to review the instructions for the control of CCTV level crossings in possessions  
IEÉ should review the instructions given to staff to control CCTV level crossings in possessions and degraded working conditions. Particular focus should be given to standardising the interface between signallers, Crossing Controllers and possession staff.  
**PCD:** 12 months from final issue of report

### 5.1.2. Actions of OTM operators

In the previous section we have discussed the actions of CTC personnel with regards to allowing the OTM to approach XW 090 with the barriers raised. However, it should be noted that on the 30<sup>th</sup> March at 00:56 as the signaller was giving the driver permission to pass WL 34 at danger they also instructed the driver “stop short of all gates and contact the crossing centre if you need them lowered”. A similar instruction was given to the driver as the OTM was entering the possession on the following night as the signaller stated “with the gates driver if you need them down just contact the gatekeepers”. No instruction, with regards to level crossings, was given on the 30<sup>th</sup> March as the OTM left the possession.

Section D 3.2.4 of the Rule Book gives the following instruction to drivers when passing over level crossings (after being authorised past a signal at danger):

- Approach cautiously and do not pass over any manned level crossing without first ensuring it is safe to do so.

CCTV evidence shows that the machine approached and passed over Lavistown level crossing on the three occasions stated in section 1. The author of the report was unable to accurately estimate the speed of the vehicle during these movements. However, the CCTV footage shows that the OTM did not stop in advance or in the immediate vicinity of XW 090 on any of the occasions stated in section 1.

**Finding 6:** OTM driver actions approaching Lavistown level crossing XW 090 on the 29<sup>th</sup> and 30<sup>th</sup> March are non-compliant with Section D 3.2.4 of the Rule Book.

**06/12-PII-miNC 3:** Non-compliance with section D. 3.2.4 of the Rule Book “passing over level crossings”

CCTV video evidence shows that the driver of the OTM did not adhere to section D 3.2.4 of the Rule Book.

During the interview process it was stated that on the 30<sup>th</sup> March after exiting the possession and on the 31<sup>st</sup> March prior to entering the possession IÉ staff on the OTM were aware that the barriers were in a raised position as the machine passed over XW 090. Section 5.3 discusses the reporting of this incident.

### **5.1.3. Actions of possession management personnel**

Section T Part Three of the Rule Book identifies the actions possession management staff should take when establishing a possession. During the interview process it was identified that a number of actions on the nights of the possessions were non-compliant with the requirements of the Rule Book. These are detailed in this section.

#### ***Granting of the possession***

Section T 9.4.1 of the Rule Book requires the PICOP to check that signal protection is provided prior to arranging detonator protection. Once the detonator protection is placed, in accordance with Section T 9.4.2, the PICOP should inform the Signaller “when all necessary detonator protection and Handsignalsmen are in position”. Reviewing the call log evidence, showed that on the nights of the level crossing occurrences and the two preceding nights (27/28 and 28/29 of March) a number of possessions were taken in one phone call, as opposed to the two required in the Rule Book (prior to and post detonator protection placement). During the interview process the control personnel interviewed stated that whether the protection would be arranged in one or two phone calls varied between PICOPs.

#### **Location of detonator protection**

The interview process identified that the detonator protection was laid approximately 144m from FP 262. However, using call log evidence for the night of the 29<sup>th</sup>/30<sup>th</sup> and 30<sup>th</sup>/31<sup>st</sup> March it was established that this information was not relayed to the signaller. It was unclear if the handsignaller had informed the PICOP where the detonator protection had been placed. However, both parties stated that it was not unusual for the protection to be placed less than required 400m at this location due to vandalism in the area. The RSC believe that it is important that the PICOP informs the handsignaller where the detonator protection is to be placed and then accurately communicates this to the Signaller. There is no evidence to demonstrate that this was done on the night of the 29<sup>th</sup>/30<sup>th</sup> and 30<sup>th</sup>/31<sup>st</sup> March.

There is no specific requirement for the PICOP to inform the signaller if the detonator protection is not placed at the required in the current Rule Book. However, the RSC believe that IÉ should

consider reviewing supporting instructions and training given to PICOPs to ensure that an accurate understanding of the possession limits is reached between the PICOP and Signaller.

**06/12-PII-Sfl 1: IE should consider reviewing supporting instructions and training given to PICOPs with regards to protection limits**

IE should consider reviewing supporting instructions and training given to PICOPs to ensure that an accurate understanding of the possession limits is reached between the PICOP and Signaller.

***Machine movements***

Section T 9.6.1 gives the following instructions to the PICOP with regards to the movements of trains towards a possession.

- the Signaller will obtain your permission before authorising any of the following movements:
  - towards the protecting detonators at either end, or
  - towards the protecting signal at either end where you have the Token for the single line section, or entering the possession at points at an intermediate location
- you are responsible for authorising any movement beyond the detonators, signal or points described above
- after the movement has passed clear of the detonators, signal or points, you must arrange for the Signaller to be told and any protection replaced

The call log evidence for the possessions on the 29<sup>th</sup>/30<sup>th</sup> and 30<sup>th</sup>/31<sup>st</sup> March show that the PICOP gave permission for the signaller to allow the machine enter the possession during the conversation in which the possession was taken. It should be noted that, at the time of this call, the detonator protection for the site was not placed. It is also unclear how the PICOP controlled the movements of the machine entering the possession from this point on. For example on the 29/03/2012 at 00:50 after taking the possession the PICOP stated that “whenever he [the OTM] rings you there now he has permission to come into the possession”. At 00:57 the signaller gave the driver permission to Pass WL 34 and “proceed to into the possession there, up to the flagman and obey his instructions”. It became apparent during the interview process that after the OTM had been given permission to Pass WL 34 it proceeded over XW 090 and into the possession without stopping at the HSM as the protection had been lifted in advance. How the PICOP liaised with the Machine operators and HSM to control this movement is unclear. There is also no evidence to confirm that the PICOP contacted the signaller to confirm that the OTM had passed the detonator protection and it had been replaced.

***Possession paperwork***

As a part of the evidence gathering process the RSC requested both the ‘Possession arrangement form’ and the ‘Engineering Supervisor certificates’ for the following dates:

- 7/03/12 ( Tuesday / Wednesday possession)
- 28/03/12 ( Wednesday / Thursday possession)
- 29/03/12 (Thursday / Friday possession)
- 30/03/12 (Friday / Saturday possession)

Samples of these forms are shown in figures 5.3.1-1, 5.3.1-2 and 5.3.1-3.

Form No. 07/08/12

Friday night  
30<sup>th</sup> 3/2012

Iarnród Éireann

### POSSESSION ARRANGEMENTS FORM

**PART A**

**ARRANGEMENTS**

I have been appointed by D/E to act as Person in Charge of the Possession of the Carroll Junction line(s) between Laneville and Warrilow in accordance with Rule Book, Section T, Part 3.

Possession taken at 07:05 / 30-3-12 time / date

Signed: [Redacted] PICOP

**PROTECTION, ETC.**

	Locations	Arranged Time / Date	Withdrawn Time / Date
Detonator protection ahead of signals / points No. (s) at:	<u>F.P. 107</u> <u>61-29</u>	<u>07:45</u> <u>30-3-12</u>	<u>07:40</u> <u>31-3-12</u>
Detonator protection in rear of signals / points No. (s) at:	<u>F.P. 11</u> <u>F.P. 105</u> <u>F.P. 106</u>	<u>07:45</u> <u>30-3-12</u> <u>07:51</u>	<u>07:47</u> <u>31-3-12</u> <u>07:45</u>
Handsignalman positioned at:	<u>F.P. 11</u>	<u>07:51</u> <u>30-3-12</u>	<u>07:45</u> <u>30-3-12</u>
Points secured at:	_____		
Signals maintained at Danger by signal post replacement switch at:	_____		
Other information:	_____		

**LEVEL CROSSINGS**

Location Type	Method of Working*	Arranged Time / Date	Withdrawn Time / Date
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

\* following codes to be used:  
 N - Normal working  
 EO - Emergency Operator provided  
 EGO - Emergency Operator provided (Part-time)

Figure 5.1.3-1 Possession arrangement form

From picture 5.3.1-1 it can be seen that for the Friday night (30/03/2012), the ‘Possession arrangement form’ did not identify any level crossing in Part A of the form. It has been established that XW 090 was outside the limits of the possession. However, there were a number of crossings in the possession that should have been entered into this section, for example Ballyreddin XW 100. This section was left blank for all of the forms requested by the RSC and when discussed in the interview process IÉ staff seemed unsure which crossings to include in this section.

PART B RECORD OF WORK			
Eng. Sup. Name / Dept.	Work Site Location	Started Time / Date	Finished Time / Date
	30 ½ - 34 mb	3:00-12	2:35-12

**NOTE:** Endorse entry with details of new ES (when relieved) and time / date

PART C CHANGE OF PICOP			
	Relieved PICOP Signature	New PICOP Signature	Time / Date
First Changeover			
Second Changeover			
Third Changeover			
Fourth Changeover			

**PART D POSSESSION GIVEN UP**

I, being the PICOP giving up possession, certify that I have advised the Signalmen at C.T.C that the line(s) is(are) clear and safe for train to run on.

Signed: [Signature] time / date 2:35 / 31-3-12

**NOTE:** On completion, this form must be submitted in accordance with departmental instructions.

Figure 5.1.3-2 Pat B of Possession Arrangements form

ENGINEERING SUPERVISOR'S CERTIFICATE	
<p><b>NOTES</b></p> <p>(a) This certificate is referred to in the Rule Book Section 8, clause 6 and Section T, Part 3.</p> <p>(b) It is additional to any required in connection with the isolation of the traction current.</p> <p>(c) A separate form is needed for each line affected by the work.</p>	
<p><b>PART A AUTHORITY TO START WORK</b></p> <p>Authority is given by <u>M O'NEILL</u> (Name of PICOP for work to start at <u>30 ½ - 34</u> (location) affecting the <u>30 ½ - 34</u> line  PICOP at <u>20-05-31-3-12</u> time / date  Noted by [Signature] ES at <u>20-05-31-3-12</u> time / date  (*) Insert PICOP's name if form dictated by PICOP</p>	
<p><b>PART B CHANGE OF ES</b></p> <p>Certificate Noted by relieving ES:</p> <p>Signed _____ New ES at _____ time / date  Signed _____ New ES at _____ time / date  Signed _____ New ES at _____ time / date</p>	
<p><b>PART C WHERE ES ALSO ACTING AS TSC</b></p> <p>I am acting as TSC for the <u>Coaling Road</u> (description) work  Signed [Signature] ES at <u>21-3-12 / 10-00</u> time / date  I now certify that the work for which I am responsible as TSC  (a) is completed and everyone is clear of the line, OR  (b) is continuing without reliance on the possession arrangements  Signed [Signature] ES at <u>02-35 / 31-3-12</u> time / date</p>	
<p><b>PART D COMPLETION OF WORK</b></p> <p>I, being the ES at the above site, certify that:</p> <p>(a) the portion of line affected by the work is now clear and safe for trains to pass  (b) all marker boards have been removed  (c) anyone remaining on or near the line has been told that traffic will then resume  Signed [Signature] at <u>02-35 / 31-3-12</u> time / date</p>	

Figure 5.1.3-3 Engineering Supervisors form

Figures 5.3.1-2 and 5.3.1-3 show the second half of the possession arrangement form and first half of the Engineering Supervisor's certificate (for the OTM work), respectively. Both of these forms identify the limits of the worksite as the 30 ½ to the 37mp. It should be noted that the 30 ½ milepost is on the Kilkenny side of points 262 and therefore outside the limits of the possession. It was stated during the interview process that no work was undertaken outside the limits of the possession and that 30 ½ was a point used historically as it used to be the end of the permanent way section. However, the RSC are of the opinion that the agreement between the PICOP and ES to establish a worksite that had limits outside of the possession boundaries could have led to a serious incident.

**Finding 7:** Assessment of the actions of a number of IÉ staff (discussed in this section) have shown IÉ to be non-compliant with a number of areas of Section T3 of the Rule Book.

**06/12-PII-miNC 4:** Non-compliance with section T3 of the Rule Book Arrangements for absolute possession of the line

Section 2.1.3 of this report has identified a number of areas where IÉ personnel have not complied with section T3 of the Rule Book.

### 5.1.4. Possession Monitoring

As discussed in the previous section of this report the PII process identified a number of non-compliances with section T3 of the Rule Book. Therefore the interview process included discussing the monitoring of possessions undertaken by IÉ production staff. It was identified that this is controlled by CCE-SMS-001 which requires the Accountable Line Manager, management/supervisory team and Safety representatives to undertake a prescribed number of safety tours per period. The safety tours can be undertaken at a number of work environments including possessions and the requirements for each safety tour are stated in CCE-SMS-008 Appendix 1.

When discussing the safety tour process during the interview process the following issues were identified:

- Space to record information regarding the Possession is relatively limited.
- Assessment of paperwork is required, but no space is allocated for this on the form.
- Management staff undertaking the tours may not have experience or training in the HSM or PICOP duties they are assessing.
- Forms are difficult to assess due to the relatively brief feedback recorded.
- There is no prescribed percentage of safety tours that have to be dedicated to possession work.

In light of the non-compliances identified in section 5.1.3 the RSC believe that IÉ should review the effectiveness of possession monitoring process. This review should address the issues raised above with regard to the monitoring forms. The review should also identify if there is a need to provide possession management appreciation training for management staff undertaking the monitoring. This would ensure that staff are aware of the fundamental roles of the different possession management staff. The training could also give examples of issues that may be found and how these should be recorded.

**Finding 8:** Non-compliances identified in section 5.1.3 indicate that current strategies are not ensuring possession management is undertaken in accordance with the Rule Book in an effective manner.

**06/12-P11-AR 4:** IÉ to review procedures for ensuring possession management is undertaken in accordance with the Rule Book

The review of possession should address the following areas:

- Documentation
- Monitoring intervals
- Training of staff undertaking monitoring

**PCD:** 6 months from final issue of report

### 5.1.5. Pre-Possession Planning

Once the requirement for a possession has been identified the extent, duration and location of the possession is agreed between the operations and engineering departments in accordance with section T3 -7 of the Rule Book. This high level detail is agreed significantly in advance of the actual possession. The detailed planning of the work in the possession is agreed nearer the possession by regional staff.

During the interview process it was identified that the planning of possession work and resources would be undertaken at the regional control room meetings. These meetings take place at centralised locations every Monday, Wednesday and Friday. These meetings would review the maintenance work that had taken place and plan future maintenance activities. Permanent way staff including the Regional Manager, Permanent Way Inspector (PWI) and appropriate Mobile

Gangers would be in attendance at these meetings. Signal maintenance management staff would also be represented at the control room meetings to discuss resource requirements. The possession arrangements agreed at these meetings would then be relayed to the PICOP and ES by the PWI or appropriate Mobile Ganger. This would be done informally either by phone call or face to face discussion.

During the interview process it was stated that IÉ have recently introduced a briefing process which takes place prior to the possessions. However, it was stated in the interview process that staff from the Production departments (e.g. OTM operators) and signal maintenance staff interviewed may not attend these meetings. The staff from these departments interviewed stated that they would be briefed on site by the ES with regards to their role on-site just prior to undertaking their duties in the possession.

It was unclear from the interview process who was required to attend each briefing and what these briefings should cover.

The requirements for undertaking “site safety briefings” are prescribed in CCE-SMS-003 – Briefings. Possession management staff did not refer to this standard when discussing the briefings they would deliver on site. There was also no evidence to show that staff had been trained to apply the principles of CCE-SMS-003 to possession work.

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

It was also unclear where the safety arrangements for the possession were briefed to the PICOP and how he would relay this information to protection staff. For example; Handsignalers, ESs and TSC’s. The RSC believe by not having a high level meeting to discuss protection arrangements and vehicle movements certain issues were not addressed and briefed to possession staff sufficiently, for example; the location of detonator protection, procedures for crossings inside the possession and the procedure for crossing XW 090 prior to entering the possession.

**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.*

To address findings 9 and 10 the RSC believe the following action is required.

**06/12-5 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.

## 5.2. Training and Competence

Training and competence of personnel involved in safety critical work is a key activity of any duty holder.

### 5.2.1. OTM Operators

The role of the OTM operator is relatively varied as it requires understanding of how to drive machines from A to B during normal operating conditions on the network. Operators are also required to move and operate different types of machines within possessions.

IEÉ Railway Safety Standard (RSS) 39 (issue 1.03 – 01/06/09) addresses the selection, training and monitoring of OTM operators. This standard was effective from 2009 and although IEÉ personnel questioned the applicability of an RSS in the current IEÉ SMS the RSC believe that this was the most applicable document. The RSC have this view because this document was provided in evidence and labelled with an 'effective' status. In addition to this no evidence was provided that RSS 39 was formally withdrawn and replaced with a suitable standard to monitor OTM operator competence.

Key sections of RSS 39 addressing driver rules knowledge, route knowledge, and monitoring is given in the following paragraphs.

- **Operational Rules Training**
  - 6.3.1 This training will be conducted under the control of the Iarnród Éireann Training Manager.
  - 6.3.2 Training, assessment and certification for railway operations must include the following;
    - Operational rules and procedures; and
    - Track Safety Co-ordinator (TSC at any stage prior to final assessment).
  - 6.3.3 The syllabus is contained in I-PLM-5301:- Safety Competence Management System for OTM Operators.
  
- **Route knowledge**
  - 6.6.3 The requirements for Route Knowledge for OTM Operators can be found in I-PLM-5300
  - 6.6.4 The knowledge and skills learnt during the training covering Principles of Route Knowledge and Acquisition can be applied during practical experience while working over a particular route.
  - 6.6.5 The Local Manager for the OTM Operator must ensure that a route knowledge acquisition and retention plan is implemented for each OTM Operator which takes into account the amount of practical experience gained over each route.
  
- **Monitoring**
  - 10.1 The Local Manager must ensure that newly-certified OTM Operators are monitored in accordance with I-PLM-5301.
  - 10.2 Thereafter OTM Operators must be monitored driving and working the OTM by the Local Manager or his appointed representative, at least once every six months for all OTMs that they have been trained on.
  - 10.3 The Chief Mechanical Inspector or his/her nominated Assessor will monitor OTM Operators at least annually to ensure competence is being maintained for all OTMs that they have been trained on.



In the interview process it was identified that both OTM drivers had over 30 years experience in their role. However, the monitoring regime applied to the drivers was significantly different from the process identified in RSS 39. The sections of RSS 39 detailed previously are currently not applied to OTM operators. Reasons for this that were identified during the interview process included the supporting standards have not been issued (e.g. I-PLM-5300) and the lack of availability of suitably qualified staff to undertake training and assessment activities.

**Finding 11:** RSS 39 (or a replacement standard) has not been implemented, in accordance with the approved safety management system, to control the training monitoring and competence of any of IÉ's OTM operators. Even though the number of staff this standard applies to is a relatively small number of staff (less than ten) the fact that the standard has not been applied to any of these individuals is evidence of a system failure.

**06/12-PII-MaNC 1: Failure to monitor the competence of OTM operators in accordance with IÉ SMS requirements**

The RSC are of the opinion that RSS 39 (or a replacement standard) has not been suitably implemented to control the training, monitoring and competence of any of IÉ's OTM operators in accordance with the approved safety management system.

It should be noted that senior IÉ staff had identified this non-compliance in 2011 and an action plan had been implemented to address this non-compliance. By May 2012 IÉ had taken the following steps:

- A new competence management system was at a very advanced stage of development, with draft standards and assessment material being presented to the RSC.
- All OTM operators had attended a Guard Rules Refresher course
- In cab checks and competence assessment of each member of each OTM operator had been undertaken
- A competence assessor has been resourced to implement the underpinning knowledge/driving summary assessment portion of the new CMS.

During interview it was stated by IÉ senior management that they were aware of this non-compliance and, by way of mitigation, the actions above had been undertaken to reduce the risk of a system failure due to OTM operator competence.

The RSC accept that IÉ had identified this non-compliance and had taken action in an attempt to manage the risks introduced to the railway. However, the RSC believe that by passing through Lavistown Level crossing on three occasions, with the barriers in the raised position, the OTM operator has shown a significant lack of understanding of fundamental Driver Rules. This is an area which is covered in a specific guard's course for OTM operators. However, due to the actions of the driver it does not appear that this training was suitably effective. Therefore the RSC believe that 06/12-PII-MaNC 1 remains valid.

There was also no evidence that IÉ had undertaken a formal risk assessment and mitigation process to manage the non-compliance and who had ultimate responsibility for authorising this. This issue was raised by the RSC in the Cuttings and Embankments audit of 2010 where the following recommendation was made.

<b>CCE6</b>	<b>IÉ should develop a process to deal with known non-compliances.</b> IÉ (CCE) should review their technical standards and related work practices to identify known non-compliances. Having identified these IÉ should develop a process/procedure to manage these until they become compliant.
<b>Priority</b>	High - Commence within 3 months
<b>Timescale</b>	3 Months (to complete action having commenced activity)

To ensure Non-compliances are suitably managed and the actions taken are authorised by the suitable member of IÉ management personnel the RSC believe it is necessary to escalate the principles of this recommendation into an action required addressed to IÉ Engineering and Operations functions.

<b>06/12-P11-AR 6: <u>IÉ should develop a process to deal with known non-compliances</u></b> IÉ Engineering and operations functions should review their technical standards and related work practices to identify known non-compliances. Having identified these IÉ should develop a process/procedure to manage these until they become compliant.  <b>PCD: 6 months from issue of final report.</b>
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### 5.2.2. Possession Staff

To control safety in a possession a number of personnel perform set roles including PICOP, ES and Handsignaller (HSM).

The refresher training course and competence assessment dates (at the time of the incident) are shown in Table 5.2.2-1 for the possession staff interviewed:

**5.2.2-1 Training and Assessment details for Possession staff**

Role	Date of last refresher course (Max no. Of months between refresher)	Date of last assessment
PICOP	23/11/2011 (24)	06/02/2012
ES	22/03/2011 (24)	07/08/2010
HSM	16/07/2009 (36)	20/10/2011

The information given in Table 5.2.2-1 shows that at the time of the incident all three staff were compliant with IÉ training course requirements for the duties they performed. However, it was noted that the period between the refresher course and the on-site assessment often varied. It can be seen in the table that the ES had not been assessed in the year after their refresher course on the 22/03/2011.

IÉ personnel interviewed did identify that the company is planning to introduce a competence management standard (CCE-SMS-012 – Rule Book competence assessment) that will prescribe the time periods between training courses and on-site assessments. The RSC believe that a process of

this type is required to ensure that staff competence is verified within a suitable time period after the training course.

**Finding 12:** The time period between the refresher course and the on-site assessment varied in the sample data taken. It was also identified that these time periods were not currently prescribed in current IÉ competence standards.

**06/12-PII-Sfl 2:** IÉ should consider prescribing time intervals between training and assessment  
IÉ should consider producing a standard which prescribes time intervals between training and competence assessment for possession management competencies.

### 5.3. Reporting

The preceding findings of this report have focussed primarily on the procedures in place to ensure an OTM does not traverse a level crossing with the barriers in the raised position. However, this was not an isolated occurrence as the OTM passed through XW 090, with the barriers in the raised position, three times in the space of 24 hours. This significantly increased the possibility of an accident occurring. Therefore this section will analyse how the occurrences were reported and controlled.

Section 2 identified the events of each night and the approximated time lines of reporting. It was apparent during the interview process that the personnel on board the OTM were aware that the vehicle had passed through the crossing with the barriers raised after leaving the possession on the morning of the 30<sup>th</sup> and going into the possession on the morning of the 31<sup>st</sup> March. When asked why they did not report this incident, the responses given would indicate that they were not aware of the severity of the occurrence. One of the interviewees repeatedly stated that they were aware the machine went through the level crossing with the barriers up but did not report it as “nothing happened”. Another interviewee stated “that there was no point going back, as it was not going to prove anything”. When questioned as to if the incident had occurred at a busier level crossing (for example Ballyreddin – XW 100) what would they have done, one of the interviews stated that he thought this would be reportable.

**Finding 13:** IÉ personnel have demonstrated a lack of understanding with regards to the severity of these incidents at Lavistown level crossing.

Reporting of incidents is controlled by the Rule Book and departmental standards. The Rule Book Section B outlines General instructions to all personnel and clause 1.2 states:

- if you become aware of something which causes you concern for safety but is not of immediate danger, tell the signalman or Person in Charge as quickly as possible.

In addition to this CCE-SMS-007 ‘Reporting and Investigation of Accidents and Incidents’ section 4.2 states:

- Any Incident or “near miss” is considered to be a Hazard and must be reported by employees on a Hazard Report Form which is part of the Hazard reporting process according to CCE Safety Management Standard CCE-SMS-006 – “Hazards and Risk Assessments”

**Finding 14:** The evidence gathered by the RSC would indicate that the personnel on board the OTM on at least one occasion were fully aware that the vehicle had travelled across XW 090 with the barriers in the raised position. As this occurrence was neither reported to the CTC signaller or a Hazard Report Form completed on any occasion, the RSC believe that IÉ personnel are non compliant with section B of the Rule Book and section 4.2 of CCE-SMS-007.

**06/12-PII-miNC 5:** Non-compliance with Rule Book section B clause 1.2 and Section 4.2 of CCE-SMS-007

IÉ personnel on board the OTM on at least one occasion were fully aware that the vehicle had travelled through XW 090 with the barriers in the raised position. This occurrence was not reported to the CTC signaller neither was a Hazard Report Form completed as required by IÉs own Safety Management System.

Furthermore the RSC also believe that inaccurate information was given by the driver of Y741, to the signaller, on the morning of the 30<sup>th</sup> March. Call-log evidence (detailed in section 4) demonstrates that the driver indicated that protection had been provided by two IÉ personnel at the level crossing. The interview process was unable to determine if there was IÉ staff protecting the crossing as the three personnel on the OTM denied that they were aware the machine had passed through XW 090 on this occasion or of any conversation between the driver and the signalman. However CCTV footage assessed by the RSC does not indicate that IÉ staff were present at the level crossing. In addition to this possession management staff stated that they had not arranged for the road to be blocked or for IÉ personnel to protect this level crossing.

**Finding 15:** Inaccurate information was given to the signaller which led to the incident not being reported in accordance with IÉ procedures. This meant that insufficient action was taken by IÉ to prevent the OTM passing through XW 090 on a further two occasions.

**06/12-PII-AR 7:** Re-Brief staff on the reporting process of incidents

IÉ CCE department should ensure that all staff are fully aware of which type of incident require to be reported and how this should be done.

Staff should also be briefed on the dangers of not reporting incidents and providing inaccurate information.

**PCD:** 3 months from issue of final report.

The interview process also revealed that certain possession staff were also aware that the OTM had travelled through the crossing with the barriers in the raised position on the 31<sup>st</sup> March at 00:13. Initially it would seem that staff were unsure if the gates had failed through an SET fault or if the OTM had passed through the crossing in an incorrect manner. The RSC have established that conversations took place between SET personnel, Handsignalers, the ES and the level crossing control centre operator, however, none of these conversations clearly communicated what had happened and the severity of the occurrence. The RSC believe that it is crucial for all personnel who undertake safety critical communications to be proficient in this area

**Finding 16:** The quality of Safety Critical Communication by IÉ personnel was not sufficient to ensure that the incidents of the 30<sup>th</sup> and 31<sup>st</sup> March were suitably reported.

**06/12-P11-AR 8:** IÉ safety department should undertake independent review of safety communications for maintenance personnel

IÉ safety department should undertake a review to assess the ability of maintenance personnel to undertake safety critical communications. The Head of Engineering Safety should then act as required on the findings of this review.

**PCD:** 6 months from issue of final report.

It would seem that these incidents were initially acted upon on Sunday 01<sup>st</sup> April following the occurrences being reported by Level Crossing Controllers to supervisory staff on the Saturday and Sunday. It is worthy of note that during the interview process it was stated that no action was taken on the Saturday because CTC had been informed by the level Crossing Controller during the shift. It would seem that most management personnel became aware of the incidents on Monday 2<sup>nd</sup> April as CCTV footage was analysed and IÉ's CCE department instigated an inquiry the week following incidents. This inquiry is on-going at the time of the RSC's P11.

## 5.4. Summary of findings & outcomes

This post incident inspection has identified a number of findings and inspection outcomes. They include 1 major non-compliance, 5 minor non-compliances, 8 'Acton Required' items and 1 'Scope for Improvement' area. The tables below summarise the inspection outcomes.

**Table 5.4-1 Summary of inspection outcomes**

Number	Area	PCD
<b>06/12-PII-MaNC 1</b>	Failure to monitor the competence of OTM operators in accordance with IÉ SMS requirements	N/A
<b>06/12-PII-miNC 1</b>	Non-compliance with section T3 clause 11.3.2 of the Rule Book Arrangements for absolute possession of the line	N/A
<b>06/12-PII-miNC 2</b>	Non-compliance with section T3 11.3.4 of the Rule Book Arrangements for absolute possession of the line	N/A
<b>06/12-PII-miNC 3</b>	Non-compliance with section D. 3.2.4 of the Rule Book "passing over level crossings"	N/A
<b>06/12-PII-miNC 4</b>	Non-compliance with section T3 of the Rule Book Arrangements for absolute possession of the line	N/A
<b>06/12-PII-miNC 5</b>	Non-compliance with Rule Book section B clause 1.2 and Section 4.2 of CCE-SMS-007	N/A
<b>06/12-PII-AR 1:</b>	IÉ should review instructions given to IÉ personnel with regards to Fouling Points	9 months
<b>06/12-PII-AR 2:</b>	IÉ to review procedures used by signallers to establish a possession	6 months
<b>06/12-PII-AR 3:</b>	IÉ to review instructions controlling CCTV level crossings in possessions	12 Months
<b>06/12-PII-AR 4:</b>	IÉ to review procedures for ensuring possession management is undertaken in accordance with the Rule Book	6 months
<b>06/12-PII-AR 5:</b>	IÉ should review the processes controlling the briefing of staff prior to possessions	12 months
<b>06/12-PII-AR 6:</b>	IÉ should develop a process to deal with known non-compliances	6 months
<b>06/12-PII-AR 7:</b>	Re-Brief staff on the reporting process of incidents	3 months
<b>06/12-PII-AR 8:</b>	IÉ safety department should undertake independent review of safety communications for maintenance personnel	6 months
<b>06/12-PII-Sfi 1</b>	IÉ should consider reviewing supporting instructions and training given to PICOPs with regards to protection limits	N/A
<b>06/12-PII-Sfi 2</b>	IÉ should consider prescribing time intervals between training and assessment	N/A

In the context of this report it should be noted that in 2012 IÉ have had three other possession related incidents (Shown in Table 5.4-2).

**Table 5.4-2 Possession related incidents occurring in 2012**

Date (Time)	Location	Incident	Further details
18/02/2012 (00:18)	Clonsilla	RRV on the rail outside of Possession without the knowledge of the Signaller	An RRV was on the line near Clonsilla without a possession in place or without the knowledge of the signaller
22/02/12 (23:30)	Boyle Station	Points run through in a possession at Boyle	An OTM ran through a set of points at Boyle Station while within a possession
23/02/12 (00:30)	Limerick Junction	Possession Breach at LJ364 at Limerick Jctn involving a Road Rail Vehicle	A RRV operating in the possession passed the possession limits without sufficient authorisation.

The RSC are of the opinion that these incidents demonstrate that in the area of possession management IÉ have failed to implement its Safety Management System (SMS) in contravention of Section 47 of the Act. Therefore on the 24<sup>th</sup> 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 20<sup>th</sup> March 2012 and included a requirement for IÉ to undertake a “root and branch review of its arrangements for the management of possessions”.

Due to the nature of the incidents analysed, Section 5 of this report has highlighted issues pertaining to possession management. The RSC believe IÉ should ensure that the areas where actions and non-compliances have been identified, in this report, are addressed in the root and branch review of possession management previously requested by the RSC.

## 6. Next Steps

In accordance with section 76 of the Railway Safety Act, to ensure deficiencies in the process for controlling risks at user work crossings are addressed, IÉ shall submit an Improvement Plan (Plan) to the RSC.

IÉ shall submit the Plan to the RSC, by a prescribed date, clearly defining how it intends to rectify the SMS deficiencies (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.