EAST COAST

East Coast Main Line Company

Local Investigation

into:

the circumstances surrounding an East Coast train passing Signal AH14 at danger without authority XX

Date:	XX July 2014
Location:	Arbroath
Train:	**1E15 09:52 Aberdeen to London Kings.**

Complied by:-

CONFIDENTIAL

SMIS reference:	QSC/2014/JUL/188
EC reference:	

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Remit

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A. Summary

Edinburgh Driver XX was rostered to work diagram EW22 – return diagram from Aberdeen under lodging arrangements. He was diagrammed to book on at 08:05, prepare the set for 1E15 and work 5E15 from Clayhills depot into Aberdeen station then work 1E15 from Aberdeen to Edinburgh.

The train was booked to call at Stonehaven, Montrose, Arbroath, Dundee, Leuchars, Kirkcaldy, Inverkeithing and Haymarket.

After departing Montrose station the Train Guard contacted the Driver using the internal train telephones. He advised him that signal AH14, at Arbroath, was defective, the S&T would not be available and as such he would have to pass AH14 at danger.

The driver questioned this instruction but was told that it came from Control. Having being told this he accepted this instruction and prepared to carry out the instruction.

The Driver took note of the signal number, after receiving a cautionary aspect at AH13 [Arbroath's distant signal] he reduced the train speed and checked the next signal number. Once he confirmed the signal number was AH14, he passed it at danger at 16.7 mph. He pressed the TPWS Train Stop Override button to override the TPWS at this signal.

The Driver stopped the train at the next signal, AH15, and the signaller contacted him via GSMR.

The signaller telephone the driver of 1E15 to advise him to pass AH14 at danger – the driver informed the signaller that he had already passed it at danger.

The Driver was advised by the signaller to remain at AH15 until authorised to proceed.

It was decided that the Driver could work 1E15 into Arbroath station, one signal section. He was then to be accompanied from there to Dundee station by a ScotRail Driver Manager and then relieved at Dundee.

An East Coast Driver Manager, a Guards Manager and replacement driver travelled from Edinburgh to meet the train at Dundee.

The Driver Manager accompanied the Driver and the Guards Manager accompanied the Train Guard to Edinburgh where for cause screening was carried out.

A subsequent investigatory meeting was carried out with the Driver on XX July and XX July with the Train Guard.

B. Details

Description of Location

Arbroath Signal Box is located on the East Coast mainline 77 miles north of Edinburgh.

The signalling system in use is Absolute Block Working regulations.

Approach line speed is 60 mph (80 mph HST) reducing to 20 mph. There is a Morpeth style advance warning indicator board for this speed restriction with an associated AWS magnet.

The gradient on the approach to signal AH14 is falling at 1 in 300.

The signals controlled by Arbroath are:

AH13 – UP Distant signal.

AH14 – UP Home signal.

AH15 – UP Inner Home signal

AH16 – UP Section signal.

Train Protection and Warning System is fitted in this area.

Description of the train

The train involved was EC64 HST set, compromising of Power Car 43320 leading, 9 Mk3 coaches and Power Car 43251 trailing. There were no allegations against the braking capability of the train.

People Involved

XX, Edinburgh.

- Last Competency certificate signed: 31st July 2012, valid until 31st July 2014.
- Last assessment: 10th March 2014.
- Last Formal Driving Assessment: 21st January 2014.
- Route last recertified: 24th June 2014.
- Last periodic medical: 7th January 2014. Awaiting results of medical following incident.
- Current CDP programme: CMS only – no Competency Development Programme currently in place.
    - Previous incidents:

      01/06/2007 – Leuchars station overshoot and returned to platform driving from wrong end.

      07/05/2008 – SOL incident, departed train from Dunbar without receiving ready to start signal.

      18/08/2008 – SOL incident, TPWS activation and incorrect resetting procedure.

- Previous shift pattern:

Date	Work type	Book on	Book off	Hours
	Normal	08:05	14:05	6.00
	Normal	14:01	21:55	7.52
	Normal	16:28	00:01	7.33
	RD			
	Normal	14:48	00:05	9.07
	RD			
	RD			
	Normal	13:58	22:51	8.53
	Normal	11;00	20:39	9.39
	Annual leave			
	Annual leave			
	Normal	13:28	22:39	9.12
	Normal	12:58	22:57	9.59

This gives a Fatigue Index of 2.1 using HSE Fatigue/Risk index calculator. Refer to HSE website for interpretation - http://www.hse.gov.uk/research/rrhtm/rr446.htm.

Environmental Conditions

The weather conditions were dry and clear.

There were no reports of any poor railhead conditions in the area.

The incident took place during the hours of daylight.

C. Sequence of events

- Edinburgh Driver XX was rostered to work diagram EW22. He was diagrammed to book on at 08:05, mobilise the set for 5E15 and work 5E15 from Clayhills Depot to Aberdeen Station, then work 1E15 09:52 service from Aberdeen to London Kings Cross as far as Edinburgh.
- The train was booked to call at Stonehaven, Montrose, Arbroath, Dundee, Leuchars, Kirkcaldy, Inverkeithing and Haymarket.
- Arbroath Signaller received from previous service report regarding AH14 being defective time unknown.
- 10:25 Network Rail Control, Glasgow, issue an email advising TOCs about signal AH14 signal being defective – "suspect signal wire came off pulley, trains are being cautioned passed the signal".
- Network Rail Control, Glasgow contact East Coast Control Duty Operation Manager, by telephone, to request they contact 1E15 and give them advance warning of defective signal.
- 10:25 York Control Customer Information Controller issues an email to advise "signal AH14 on UPML to be passed at danger as suspected wire fault. No estimate for S&T"
- DOM telephones Train Guard directly on his mobile telephone – call not answered.
- The Train Guard received a second call from XX – a telephone in York Control Office – again this call was not answered.
- After departing Montrose station the Train Guard noticed the missed calls and the email from Control and telephoned the Duty Operations Manager. This call was not answered by the DOM but the Customer Information Controller. The Train Guard was told that there was a wire fault on this signal so it's to be passed at danger and he was to tell the driver. The signal number was confirmed using the phonetic alphabet. The conversation then deteriated in to casual chit chat.
- The Train Guard contacted the driver and using voice comm. protocol advised the driver of the situation and advised him he was to pass AH14 at danger. The Driver questioned this and Train Guard reiterated the information confirming that the information had came from Control.
- The information was repeated and confirmed.
- The Driver accepted this as his authority to pass AH14 at danger. He started planning how to carry out this procedure and took note of the signal number.
- Approaching AH13, Arbroath's Distant signal, he received a caution aspect, he reduced the speed of his train, double checked the signal number, AH14, and proceeded to pass it at danger under caution – the train is recorded travelling at 16.7 mph. He pressed the TPWS temporary stop override button and proceeded to the next signal – AH15 where he stopped the train.
- At AH15 signal, the signaller contacted the Driver, thinking the train would be stopped at AH14 signal and was trying to save time. The Signaller advised the Driver we was authorised to pass AH14 at danger. The Driver advised the signaller that he had already passed AH14 at danger and his train was at AH15 signal.
- The Driver was advised by the signaller to remain at AH15 until authorised to proceed.

- It was decided that the Driver could work 1E15 into Arbroath station, one signal section. He was then to be accompanied from there to Dundee station by a ScotRail Driver Manager and then relieved at Dundee.
- An East Coast Driver Manager, a Guards Manager and replacement driver travelled from Edinburgh to meet the train at Dundee.
- The Driver Manager accompanied the Driver and the Guards Manager accompanied the Train Guard to Edinburgh where for cause screening was carried out.
- A subsequent investigatory meeting was carried out with the Driver on XX July and XX July with the Train Guard.

D. Summary of evidence

- **Appendix A** – Flow of information regarding AH14 signal fault:
    - Transcript of telephone call between Network Rail Control, Glasgow and East Coast Control. Electronic version held on memory stick.
    - E-mail issued by Network Rail.
    - First message issued by East Coast Customer Information Controller.
    - Second message issued by East Coast Customer Information Controller.
    - Transcript of telephone conversation between East Coast Control and 1E15 Train Guard. Electronic version held on memory stick.
- **Appendix B** – East Coast Control log entries regarding:
    - Item 56 – East Coast Control office were advised by Network Rail Glasgow that AH14 is defective and trains will be stopped and cautioned. Control advise "Guard advised"
    - Item 57 – East Coast Control entry regarding Category A SPAD at AH14 signal.
- **Appendix C** – Driver's report
- **Appendix D** – Train Guard's report.
- **Appendix E** – Signaller's statement and RT3189 form.
    - An electronic copy of the voice calls between Train Driver and Signaller is held on memory stick.
- **Appendix F** – On Train Monitor Recording.
    - Overview: this shows the train on the approach to signal AH14, it passing signal AH14, stopping at signal AH15, the train is stationary for approx 35 minutes before it starts moving again {moving into Arbroath station platform}.
    - View 1: This show the TSO being pressed, thus indicating the location of AH14 signal and all relevant activities.
    - View 2: This shows the train at the location of AH15 signal.
- **Appendix G** – FFCCTV
    - This shows the train passing AH14 and stopping at AH15. Electronic version held on memory stick.
- **Appendix H** –Extract of route diagram
- **Appendix I** – Interview notes and minutes
    - An initial discussion with Driver XX and Driver Manager XX took place on XX July.
    - A second discussion took place on XX July.
    - An initial discussion with Train Guard XX with Guards Manager XX took place on XX July.
    - A second discussion with Driver Manager XX took place on XXJuly.
    - A meeting took place with Customer Information Controller XX and Duty Operation Manager XX on XX July.

- **Appendix J** – Drivers mobile telephone records
    - These records show that there were no telephone calls made during this journey.
- **Appendix K** – For Cause screening results.
- **Appendix L** – Drivers current roster
    - This roster has the Aberdeen route diagrams are shaded orange. This roster commenced on 18th May 2014
- **Appendix M** – RT3119-B SPAD Data collection form.
- **Appendix N** – SMS9.2 Control Manual Procedure, B.9 Control Messaging requirements
- **Appendix O** – East Coast Control Log entry – Signaller contacting driver on 1S23 to advise him to stop at a signal displaying green aspect.

REFFERENCES: GE/RT8000 – Rule Book

East Coast SMS9.5 – Professional Driving Policy

HSE Research Report RR446 - HSE development of a fatigue / risk index for shiftworkers

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E. Findings

From the evidence and information available it can be established that:

The driver was competent to carry out train driving duties.

The driver had recertified his route within the standard timescales.

The driver's roster pattern has a driving frequency over the route on average of at least every two weeks. {Taking into account rest days, but not spare turns}.

The driver's actual previous 12 days working gave a fatigue index of 2.1 which, according to HSE guidelines should give a low score on the **Karolinska Sleepiness Score** indicating that his previous working pattern was unlikely to contribute to his fitness for duty.

The driver's mobile telephone was not in use at the time of the incident.

The For Cause screening was negative.

The driver allowed his train to pass AH14 signal at danger without authority.

Management of the Incident.

This incident was difficult to manage due to the location of the incident. It was decided that the driver was not fit to continue driving the train. However it was agreed to allow him to move the train one signal section to allow the train to be platformed on Arbroath Station and he would drive to Dundee Station under supervision of a ScotRail Driver Manager to allow for operational requirements. The driver was relieved at Dundee and accompanied back to Edinburgh by an East Coast Driver Manager.

For Cause screening was carried out a Edinburgh.

Drivers company telephone was examined at Edinburgh.

Driver was removed from driving duties pending completion of investigation.

Relevant rules standards and instructions

GE/RT8000/S5 Rule Book Module 'S5' Passing a signal at danger, part A section 1.2: Driver getting authority, which states that:

You can only pass a signal at danger with authority in any of the circumstances described in Part A section 1.1 of this module.

Before passing a signal at danger, you must get the personal authority of:

- The signaller
- The pilotman or handsignaller acting on the signaller's instructions, or
- Another competent person where authorised in the rules.

East Coast's current Professional Driving Policy

There are no specific areas of East Coasts Professional driving policy that was failed to be complied with

Further factors for consideration:

The driver consistently gave honest, open and frank answers throughout the inquiry.

He without hesitation accepts that he is to blame for the actual act of passing signal AH14 at danger without authority.

When the signaller contacts him to instruct him to pass AH14 at danger, he advises the signaller that he has already passed AH14 at Danger. He is heard stating this to the signaller when standing at AH15 signal.

However, the circumstances leading up to the incident and the information given to driver at the time must be examined to try to get an understanding as to why the driver made his decision.

Network Rail Control, Glasgow started the chain of events leading up to this incident. They not only issued an email advising TOCs about a defective signal at Arbroath, but followed up with a phone call to East Coast DOM. They requested that East Coast Control advise the train crew of 1E15 that AH14 signal was defective.

The East Coast Duty Operations Manager agreed to do this and tried to contact the Train Guard via his mobile telephone, simultaneously the East Coast Customer Information Controller issued an email to advise that AH14 was to be passed at danger due to suspected wire fault.

The Train Guard saw the email and noticed the missed call so called the Duty Operations Manager back. This call was answered by the Customer Information Controller and not the Duty Operations Manager. The Train Guard was advised that the signal was to be passed at danger and he was to let his driver know.

The Train Guard contacted the driver while he was driving and the train was travelling at approx. 90 mph. The Driver initially questioned the instruction but was told that Control had issued this instruction. The driver felt that since there was a defect it could mean that the signaller was not able to contact him and as such decided that the instruction was logical.

The issuing of the emails is unrestricted, it appears that once information is issued from Network Rail it is given to the CIC to issue to East Coast staff. Although there is preset wording on the first part of the message the second part “Internal Information” is free hand text and the content is left to the discretion of the CIC and there is not a review of this by the DOM. Neither the CIC nor DOM are Safety Critical members of staff.

Network Rail and East Coast appear to have developed a propensity for trying to get the train driver to be informed earlier in what can only appear to be an attempt to reduce delay. As in most cases the current rules and regulation cater for this situation.

However, during training and assessments drivers are continually encouraged to contact East Coast Control as well as contacting the signaller and work to their instructions. This could lead to a driver seeing these to roles as synonymous.

Simultaneously drivers are receiving instructions from Control on what to do in different situations and strongly encouraged to carry out these instructions without question.

This can all lead to overlapping of contributory factors involved within the decision evaluation process.

In fact the driver of 1E15 was given such instruction on the Saturday prior to this incident. When working 1S25 from Newcastle to Edinburgh the train guard and the control office were discussing another train fault and realised that there were passenger being left at Berwick upon Tweed agreed that 1S25 would need to stop specially at Berwick to pick up the passengers, it was agreed that the train guard was to advise the driver and control would advise network rail. There are no records of this in the Control Log nor were there any emails issued.

Furthermore, although the driver of 1E15 made a wrong decision to accept the instruction from the train guard, once he made it he then changed is focus of attention to executing the action – which he carried out in a safe manor.

Further investigation and incidents have been exposed during the course of this investigation.

Reviewing sample messages compiled and sent out by East Coast Customer Information Controller there appears to be requirement to include additional information that is of a safety critical nature yet the CIC is not a safety critical role

Furthermore, reviewing the Control Manual Procedure – SMS9.2 the following observations were made:

B.5 – Receiving and passing on information,

Section 6 Guidance on good communication, there are aspects of this section not adhered to during the telephone conversation between the Duty Operations Manager and Network Rail Control telephone conversation and between the Customer Information Controller and the train Guard namely;

In the first instance, the conversation was very relaxed and overtalking occurred.

And in the second instance the CIC did not correctly identify himself correctly, there was no clear understanding about what the CIC required the Train Guard to do and he then allowed the conversation to develop into a friendly chat.

As an overview of this procedure it appears to attempt to cover all reasons for communications – either normal information or information during times of disruption. During times of disruption it will be expected that a Train Guard will liaise between each other and pass on relevant information but that is usually in different circumstances to passing on information during normal train running and I think section 8 Key - East Coast Locations / Activities – the reference under the role of the Train Guard to them passing on "relevant information" to the Driver could be misleading to a situation

B.9 – Control Messaging Requirements:

According to the recipients defined in this document, drivers are not defined as a recipient of any message.

According to appendix D neither signal failures nor passing a signal at danger are defined as internal message items.

The driver involved in this incident was working 1S25 from Newcastle to Edinburgh XX July and was contact by the Train Guard and advised to stop his train at Berwick upon Tweed station – a station not booked to be stopped at. This decision was taken during a telephone call between the Train Guard and Control, but there are no record of this action in ether the Control log nor were there any emails issued by the Customer Information Controller.

F Conclusions

It is evident that Network Rail, Glasgow initiated the whole sequence of events, the reason for such act can only be due to reduce delays – and from the evidence obtained in Appendix O, during the 1S23 journey on the XX July they appear to be prolific and relaxed about contacting the train driver for performance related issues. This is also supported by the fact that when the signaller contacted the driver on 1E15, his first words were he was phoning to try and save some time.

Network Rail must have placed some importance on telling the driver in advance hence they telephoned East Coast Control specifically for the purpose of ensuring the driver was advised in advance – if they just wanted East Coast to be aware of the situation the email sent at 10:25 would have sufficed. Had they not contacted East Control and asked them to ensure the crew were advised this would not have prevented East Coast issuing their own email but the DOM would not have tried to contact the train crew on 1E15.

If the driver had not been advised he would have received a caution signal – FFCCTV confirms it was at caution – and from the manner in which he controlled his train under the circumstances there is no evidence to doubt that he would have correctly stopped his train at AH14 signal.

East Coast Control were equally enthusiastic about giving the train crew advance warning and instruction. Reviewing many of the emails issued by the CIC there is often instruction issued for the Train Guards to advise their Drivers.

Once East Coast Control received the email from Network Rail the CIC was left to transcribe the information into an East Coast email for TYRELL system – giving route information to East Coast web pages – as well as internal information. It is at this point that the terminology became somewhat risqué – it states that AH14 had to be passed at danger. This followed by the Train Guard noticing a missed call from the DOM and when he redialled the DOM he was told the signal had to be passed at danger and he was to tell his driver. The Train Guard at this point thought he was speaking to the DOM the voice communication protocol was extremely poor and would have scored an “E” on the scoring method used during Communication Review Group. But the person the Train Guard was actually talking to was the CIC – the same person who wrote the East Coast email.

In East Coast Control neither the CIC nor the DOM are safety critical workers and emails are compiled and issued without any review/check carried.

The Train Guard stated that he accepted the message from Control as he felt Control would not mislead him and that they worked in accordance with the rule book.

The contents of the East Coast email was information, it was the telephone call that gave the Train Guard an instructions, but it appears from viewing previous emails, that it is reasonably normal practice for control to issue emails instructing guards to advise their drivers to carry out certain activities i.e. contact signaller immediately when stopped at signal, special stop orders for example

The driver accepts the instruction seems unusual but looking at the situations as a whole the following should be borne in mind; the train was travelling at approx 90 mph, there was a PSR ahead, the Train Guard used very good voice comms, the driver has accepted instructions from guards before on the behest of control, the driver is trained to accept instructions from signallers and control in times of train failure and the guard referred to the S&T {network rail’s signal and telecoms dept} therefore he assumed there were communications difficulties from the signaller and this call was an attempt to circumnavigate a problem and get the instruction to him.

Immediate causes

The Driver be held wholly responsible for this incident by:

- Passing AH14 signal at danger without correct authority as defined in GE/RT8000/S5 Rule Book, Part A section 1.2

Basic Cause.

Whilst the immediate cause has been identified as the driver failing to carry out rule book instructions a common theme has been identified throughout this investigation.

Therefore in this specific case, looking at the incident as a whole and bearing in mind the above comments:

- Network Rail had a defective signal and trains had to be cautioned passed it.
- Network Rail issued an email to advise TOCs about defective signal.
- Network Rail wanted train crew to know in advance so telephoned East Coast Control and requested they warn the train crew on 1E15.
- East Coast Control issued an email of their own wording – "AH14 on UPML to be passed at danger..."
- The compiler of this message is not a Safety Critical member of staff, the message is not checked before it is issued.
- East Coast Control Duty Operations Manager tries to contact Train Guard to give advance warning of defective signal.
- Train Guard, upon noticing the email and missed calls, telephones the DOM and is told that the signal has "to be passed at danger if you would just let your driver know."
- The Train Guard, using correct voice comm. protocol, advises driver as instructed by Control.
- Driver questions instruction but accepts it when advised it came from Control. He thought that as the S&T were mentioned that the signaller was not able to get in touch with him and that he had used another method to get the information to him.
- Driver passed AH14 at danger travelling at caution.

So the basic underlying cause of this incident was Network Rail attempting to reduce the length of delay to a train.

G. Recommendations.

To prevent a recurrence of the incident, the driver be briefed on the appropriate rules and regulations appertaining to passing signals at danger.

To reduce the likelihood of recurrence, a Competency Development Programme be developed between Line Manager and Driver.

A summary of the incident be included in the next Safety Update Brief

East Coast Defensive Driving Policy be updated to include direct instructions about safety critical communications given to drivers.

East Coast Control review the requirement for issuing information to members of train crew and well as the content of any messages that are deemed necessary.

East Control staff involved in communicating with train crew be trained on Safety Critical voice comms. Procedure.

East Coast Operations Standards Manager review the role of each member of the Control team to identify if the activities of each controller are covered by Safety Critical Procedures.

East Coast review their training and assessment process to ensure the roles and references to East Coast Control and Network rail are clear and defined.

East Coast Operations Standards Manager approach Network Rail and enter discussion about the appropriate issuing of infrastructure problems, review the need to give advance notice to train drivers in regard to possibly interfering with rule book instructions and the appropriate use and timing of GSM-r calls from signallers / Controllers and train drivers.