SPAD Report
for
February 2001

RAILWAY SAFETY

Working for a safer railway

Published by the

Controller, Safety Strategy & Risk
Railway Safety
Evergreen House
160 Euston Road
London
NW1 2DX

14 March 2001

SPAD REPORT FOR FEBRUARY 2001

Executive Summary

- There were 42 Category A signals passed at danger in January 2001.

- There were four more SPADs than in February 2000 but two fewer than the average of February figures for the last six years.

- There were nine more SPADs than in January 2001; this is typical of the variation between January and February.

- Although the SPAD rate has now been below the six-year average for 19 successive months, the downward trend has levelled off. The SPAD rate has remained effectively flat since October 2000.

- 13 of the 42 SPADs (31%) were at signals within the current definition of a multi-SPADed signal (two in the last five years), and 21 (50%) occurred at signals with a previous SPAD record. These percentage figures are in line with previous months. In the longer term, fewer signals are being classified as multi-SPADed.

- 21 of the 42 SPADs (50%) in February qualified as bad actor events, *ie* the total of SPADs against the signal reached four or more or the total against the driver reached two or more. This figure is higher than usual. Bad actor events require increased attention as they may have specific causes which need to be addressed.

- 14 of the 42 SPADs (33%) were severe (severity category 3 to 8). This is close to the usual percentage.

- There was one starting against signal SPAD (SASSPAD) at platforms and a further four not at platforms during February. The poor performance in SASSPADs at platforms seen previously in the year 2000/01 has not continued into February.

1 Introduction

1.1 This is the seventeenth in a series of monthly reports on Category A Signals Passed at Danger (SPADs) on Railtrack PLC (known as Railtrack) controlled infrastructure (RCI). It covers the month of February 2001.

1.2 The criterion for a Category A SPAD to be reported and included in this series of reports is that it occurred on RCI. SPADs in some sidings and depots, which are off running lines but on RCI, are therefore included, whereas those on property not owned by Railtrack are not included unless the passing of the signal causes the train to enter or affect RCI. This is a slightly wider definition than that used in RIDDOR, where the requirement for reporting to the Health & Safety Executive is "*any case where a train, travelling on a running line or entering a running line from a siding, passes without authority a signal displaying a stop aspect unless the stop aspect was not displayed in sufficient time for the driver to stop safely at the signal*." This RIDDOR-based sub-set of the full RCI SPAD data is referred to in Railway Safety's safety performance reports as "On or affecting running line (OOARL) SPADs". The OOARL and HSE reportable incidents can be fewer than the number on RCI.

2 Main Findings

2.1 42 signals were passed at danger. The complete list is at Table 1.

2.1.1 Table 1 includes a column which shows the overlaps associated with the SPADed signals. A note below the table explains the convention used to distinguish between no overlap and overlap not reported. As in previous reports, the table includes the duty holder (*ie* the name of the company under whose safety case the train was running, not necessarily the employer of the driver). It also shows the overrun in yards, and the total number for all years since 1985 of SPADs against each signal. The number of SPADs by the driver is as reported by the train operator (mostly in information supplied directly to HMRI); SPADs in previous employment may not be included. The HMRI priority for investigation is also shown.

2.1.2 One SPAD was in severity category 4, *ie* it led to track damage. On 27 February, an empty passenger train passed the Stop Board on siding No.11 at Old Oak Common, running through a set of points. It was stopped following an emergency radio broadcast.

2.1.3 A further 13 SPADs were in severity category 3, *ie* the overrun exceeded the overlap or 200 yards. High severity SPADs are analysed at paragraphs 3.3.1 and 5.

2.2 Only one of the 42 SPADs was a SASSPAD at a platform, on 24 February at SN209 Ealing Broadway. A further four SASSPADs occurred other than at platforms. There is further analysis of SASSPADs at paragraph 6.

2.3 13 of the 42 SPADs (31%) were at signals currently satisfying the definition of a multi-SPAD signal (two or more in the last five years). MP332 at Ardwick had its eleventh SPAD on 2 February and Y305 at York reached its ninth on 4 February. T124 signal at East Croydon reached its fifth on 21 February. C13 at St Fagans reached its fourth on 20 February. Four SPADs against a signal is a certain indicator that the cause is not random but a property of the signal and its environment. Three other signals also reached a total of four but they do not meet the current multi-SPAD definition because their previous SPADs were over five years ago. These were SY179 at Bordesley Jcn on 2 February, PA334 at Newton-On-Ayr on 7 February and a St. Andrews Cross on platform 11 at Bristol Temple Meads on 16 February. There is further analysis of multi-SPADed signals at paragraph 13.

2.4 There were 21 bad actor events in which the signal involved had accrued four or more SPADs or the driver two or more (50% of the total). Of these, one implicated both the signal and driver, 14 only the driver, and six only the signal. The total number of drivers having two or more SPADs this month was five (17%).

2.4.1 In February 50% of all SPADs qualified as bad actor events; this is the second successive month when the proportion has been unusually high. The average is about 38%. With the overall SPAD rate no longer in decline, it is essential the factors which lie behind bad actor events are investigated since such SPADs have specific characteristics which must be identified and eliminated.

2.4.2 We again wish to remind train operators and Railtrack zones of their responsibilities for entering drivers' records into SMIS. We are becoming increasingly reliant on data provided by HMRI for drivers' records. Railway Group members are obliged to enter accurate and timely data into SMIS. We have written to those companies which are failing in this regard.

3 February in Context

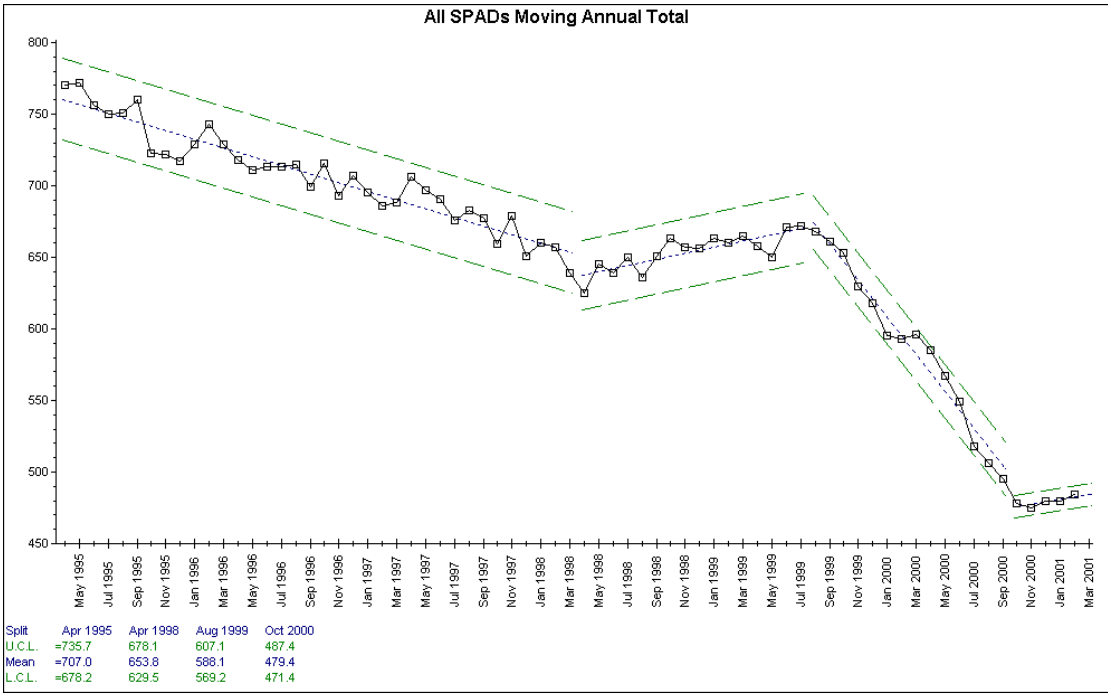
3.1 The monthly figures for SPADs since 1994/95 is shown in Table 2a. Each year runs from 1 April to 31 March, and the vertical line within the table indicates where we are.

3.1.1. Following formal investigations, the figures for December and January have both reduced by one. The events which have been re-classified and are no longer considered to be Category A SPADs are:

- SN8009 at Ditton Junction on 19 December 2000 – signaller believed train had passed signal but forgot site had been remodelled.
- T242 at Tinsley Yard on 12 January 2001 – reclassified as Technical SPAD (Category B).

3.2 The SPAD total for February 2001 is 3% higher than for February 2000 but 5% lower than the average over six years. Not since June 1999 has the monthly figure been worse than the average for the month. However, in three of the previous six years, February had a better SPAD record than in this year. There is no longer an improving trend.

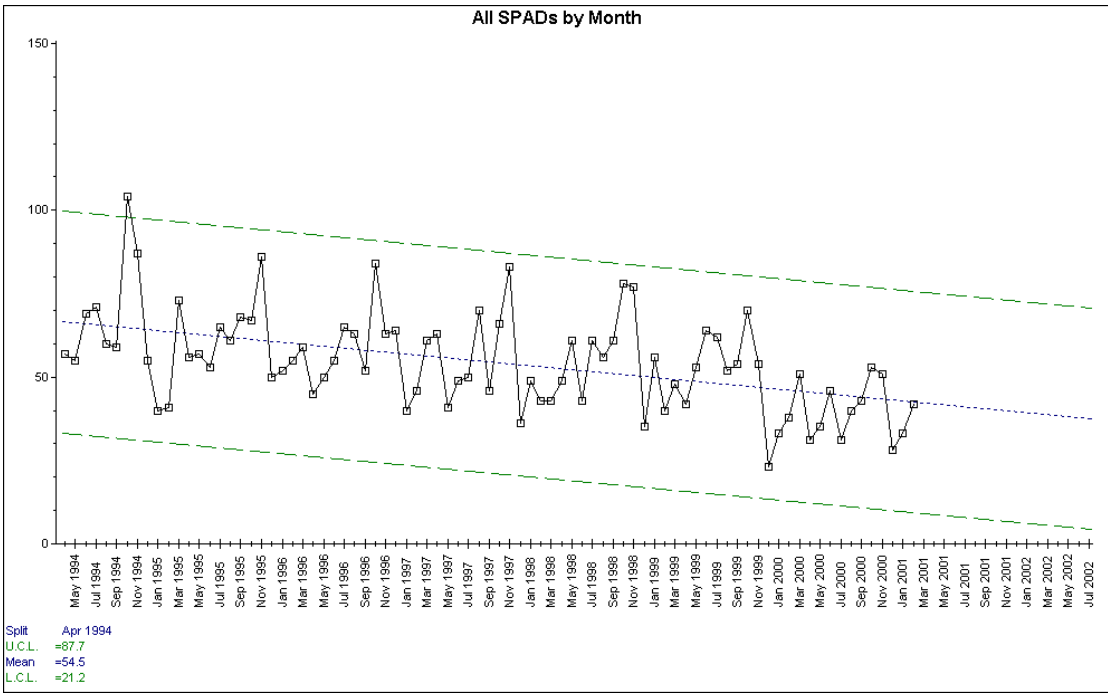
3.2.2 The following graph shows the moving average total of all SPADs since April 1995 (the blue line). The green lines are the upper and lower control limits calculated for a run chart using statistical control processing techniques. The formula used to calculate the control limits is *average number of events +/- (2.66 x average variation between data points)*.



The data point for January was just out of statistical control in the long downward trend seen since September 1999. The February figure was well outside, and there have now been four successive indicators of a change. This has led us to a re-calculate the control limits. Analysis shows that the split point is the entry for October 2000. There has since then been a different trend to that seen previously. The strong downward trend has thus come to an end. Although the graph shows a rising trend since October, it contains only five data points, and it would be reasonable to assume that the trend is actually flat. It is too soon to determine whether there will be a soft landing or whether there will now be deterioration in performance. It is still possible that some special factor is at work, relating to increased abnormal working following the Hatfield accident on 17 October 2000. However, reduced train mileage post-Hatfield (about 10% in November and December) would counter this factor. Alternatively, the many initiatives which have led to a lengthy and sustained improvement may have reached the limits of their effectiveness.

3.2.3 It is of course essential that the control measures initiated during the last two years continue to be applied, otherwise the improvements achieved could be lost. Renewed focus on SPAD management is essential if additional initiatives are to be taken forward with the vigour necessary to regain the momentum.

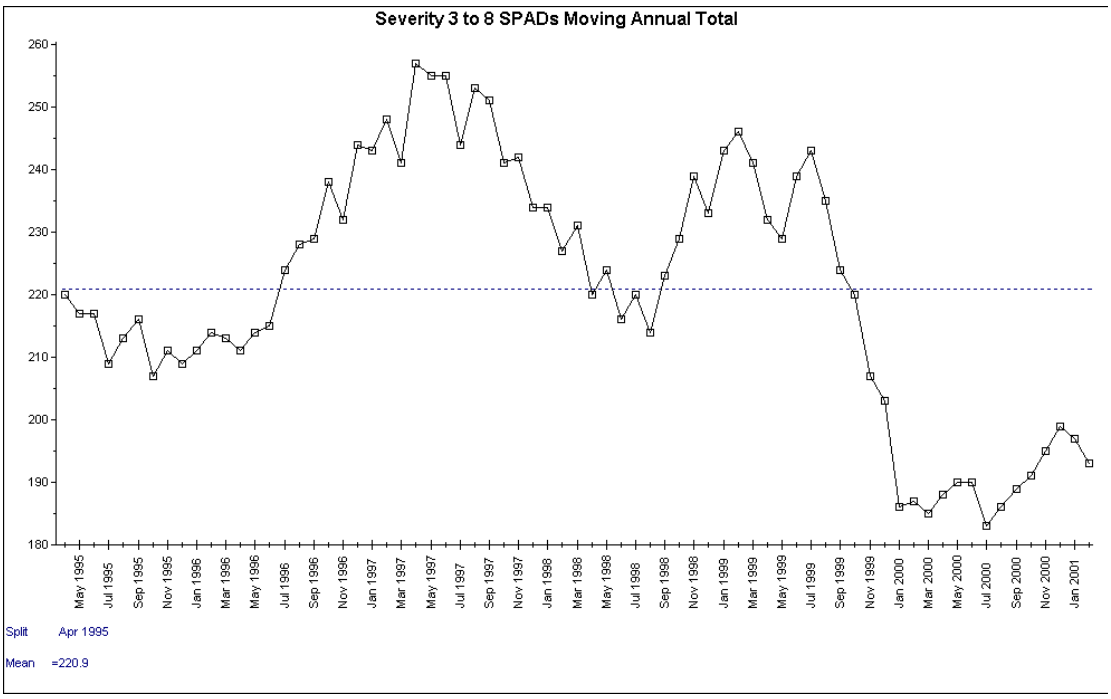
3.2.4 When seen on a monthly basis the improving trend seems to be continuing, but the data is distorted by seasonal variations:



Nevertheless, we can see that there has been a downward trend since October 1994, with most of the results since November 1999 still below the average. Initiatives introduced before the Ladbroke Grove accident, some dating back as far as 1995, have contributed to this improvement.

3.3 Table 2b shows the monthly figures for category 3 to 8 SPADs. The table is susceptible to later correction as categorisations are confirmed.

3.3.1 There were 14 severity 3 to 8 SPADs in February, three fewer than the six-year average, but five more than in January. When the techniques of statistical process control are applied to this data, we can see that the graph shows so much variation that it is not possible to compute control limits.



3.3.2 There appears to be a rising trend in the data since February 2000, and there was some statistical evidence for such a trend. However, we have shown in previous reports that the severity 3 to 8 figures are distorted by variations in historical reporting standards which prevent accurate assessment of the apparent upward trend, which no longer seems so well developed. Regardless of whether there is a trend in any direction, these high severity SPADs must remain the focus of management action.

3.4 We are still considering what benefits could be obtained by special monitoring of SPADs which occur in circumstances of abnormal working. Our proposed definition of abnormal working has changed slightly to reflect comments from Railtrack, and now reads:

- Unplanned shunting manoeuvres
- Running off normal route
- Train movements affected by a possession
- Use of temporary signals (including handsignallers and caution boards)
- Pilotman working
- Poor railhead conditions
- Running under emergency speed restrictions

Temporary speed restrictions are not included, since these should have been briefed to drivers. The principle driver now in refining the definition is that we must be able to identify which SPADs fall within it.

4 Type of Signal

4.1 Table 3a shows where SPADs occur, by signal category and type of control. The same data is presented in Table 3b in percentage terms. Position lights continue to maintain a marginally higher SPAD rate than in most previous years.

5 Severity Category

5.1 Table 4a gives a breakdown of SPADs by severity category. The same data is presented in percentage terms in Table 4b.

5.2 The more severe SPADs require a special degree of attention during formal investigation, since they carry a higher level of actual risk than others. Trends in high severity SPADs are discussed above at paragraph 3.3.2. Table 4b shows a remarkably consistent set of proportions for each severity category. The only significant variation is the shift between severity categories 2 and 3 (most easily recognised in Table 4b) following the change in definitions earlier this year. The new definitions are given at Table 4c.

6 Starting Against Signal SPADs (SASSPADs)

6.1 The numbers of SASSPADs during the last six years are given in Table 5a. Table 5b shows SASSPADs as a proportion of all SPADs. The SASSPAD rate as a whole is reducing at about half the overall SPAD rate, but the improvement is entirely in SASSPADs not at platforms. Despite there being only one in February, the platform SASSPAD rate remains a major concern. The projected year-end figure is now 46, against 43 in 1999/00, and not much below the six-year average of 50. Whereas the overall SPAD rate is currently about 20% lower than last year, the platform SASSPAD rate is about 6% higher. The single platform SASSPAD in February was in severity category 3 (SN209 Ealing Broadway 24 February).

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6.2 Details on the use of DRA are recorded at Table 5c. The status of DRA has yet to be determined in some recent events, but the table records that SASSPADs have occurred even when the DRA was used (46 such incidents recorded so far in the 23 months since April 1999), although there are more incidents when DRA was fitted and not used (71 incidents since April 1999).

6.2.1 Despite concerns over changes in the approved method of using DRA, it is essential that its proper use is enforced.

7 Railtrack Zones

7.1 The numbers of SPADs in each Railtrack zone is shown in Table 6a, and in Table 6b as a percentage of the total. The relative busyness levels of each zone is reflected in the consistency of their annual SPAD rates. Month-by-month figures for 1999 and 2000 are at Tables 6c and 6d.

7.2 Of particular concern this month is the SPAD performance in Great Western Zone. The zone's SPAD performance to date is significantly higher than last year, but the concern is amplified by the wide variation in the monthly figures. When seen in context of previous records, the recent increase from three SPADs in January to 15 in February is not out of statistical control; wide variations in SPADs have been experienced before in this zone since April 1999. Indeed, the range of variation expected is between zero and 17 SPADs per month. There is no evident seasonal factor which could cause this variation, whilst other zones have a much narrower range of variation. Factors which could lie at the root of the phenomenon might include introduction of changed working without adequate preparation, changes in traffic levels, changes in train operators, and both the incidence of and the management of speed restrictions post Hatfield. It is an issue worthy of further investigation at an appropriate level.

8 Train Operating Company

8.1 Table 6e gives a breakdown of SPADs by train operator. The granularity does not support comparisons between companies, and the data is not normalised. Although the table includes some incidents where the prime cause might not be driver error, even these can contain a driver component if there is a failure to come to an understanding with a signaller, or if an instruction is accepted to move a train other than as provided for in the rules.

8.2 The forecast column in Table 6e contains a straight-line extrapolation of the data for the full year. With 11 months' data now accumulated, this forecast is mature. Where a total of four or more SPADs has been recorded so far this year, and the forecast column shows a figure higher than in previous years, there is a strong indication that the company concerned needs to take remedial action to ensure delivery of the SPAD objectives in the Railway Group Safety Plan and supporting company plans. Cardiff Railway remains in this category despite having had no SPAD since November 2000. GNER's record has worsened recently, with a projected doubling of last year's figure. Great Western Trains have also suffered from some recent events with a projected eight SPADs against none last year; this is unusual on a partially ATP protected route, although Heathrow Express also suffer the occasional SPAD. The most significant improvements have been seen in WAGN, Northern Spirit, North West Trains, Central, and c2c. Amongst passenger operators, Chiltern Trains, Hull Trains, and Eurostar have no SPAD recorded this year.

9 Cause

9.1 Table 7a shows the reported causes of all SPADs, and Table 7b shows their percentage of all SPADs. Tables 7c and 7d show the same data for severity category 3 to 8 SPADs. *Failure to react to a caution signal* remains the most common cause for all SPADs. For the SPADs with more serious consequences, *failure to check signal aspect* remains above *failure to locate signal*, which is much more dominant than in previous years.

10 Hazard Ranking

10.1 Hazard rankings are at Table 8a, and the percentages are in Table 8b.

10.2 Following agreement at the National SPAD Focus Group (NSFG), the proposal to replace the current hazard ranking procedure is being implemented. The aim is to have three stages of reporting:

1. A rapid preliminary assessment of the collision potential of the SPAD based on the question "Following a Category A SPAD, could the train, before it reached another stop aspect, have come into conflict with another train on a legitimate path joining or crossing the route ahead of the signal passed at danger?"
2. A SPAD accident vulnerability ranking, assessing how close the actual SPAD came to a collision.
3. A SPAD risk ranking, assessing the potential risk from the SPAD given that SPADs can result in a collision with another train or buffer stops, a train derailment, a collision with a road vehicle on a level crossing, or a train entering a possession with the potential for encountering workers on the track.

10.2.1 The aim is to begin reporting using the new method in April 2001 so that an historical baseline can be established in time to set a realistic target at the Railway Group Safety Plan conference in October 2001. A pilot study is currently in progress with two Railtrack Zones. It is thought likely that the new methodology will be rolled out to the Railtrack Zones during April, with the rankings applicable to any SPADs that occur in April being completed retrospectively. The SMIS reporting tool will be changed and the current hazard ranking system will eventually be abandoned.

11 Rail Conditions

11.1 Details on rail conditions at the time of a SPAD are shown in Table 9a, and Table 9b shows the percentages. The *all types of contamination* lines give a summation of *contaminated by previous train, greasy, ice/snow*, and *leaves*. The *not contaminated* figures only began in 1998/99 because of a change in the reporting rules.

11.2 So far only one SPAD in February has been recorded with *ice/snow* as a rail condition cause.

12 Drivers' Age and Experience

12.1 Table 10a gives the experience of drivers who are involved in SPADs. It also shows the numbers of SPAD reports where the driver's experience is given. Table 10b shows the figures as a percentage of the totals. An additional column indicates the experience levels of all drivers. Note that 9% are in their first year, and 14% are in the two to five year band, a total of 23% in their first five years of driving. We are concerned at the increase in the number of records where driver's experience is not given. 18% are currently unknown, against 15% last month. We have written to all concerned stressing the imperative of timely reporting.

12.2 Table 10b also reflects a phenomenon which several authorities have previously recognised, namely a group of drivers who were recruited around 1988/89 and have shown a persistently higher than average SPAD propensity. A 34% high in the two to five year experience group in 1994/95 represents a cluster which partly moves into the six to 10 years group in 1995/96, increases further through the years to 1999/00, when the cluster partly moves to the next group with 11 to 15 years' experience. We have referred to this issue several times in recent reports in this series. There is some evidence that the experience group into which this cluster is moving has done least to achieve the recently ended improvement in the SPAD rate. Train operators should take action to ensure that they are able to manage the issue, and we will be looking for evidence that this is happening.

12.2.1 When the same phenomenon is viewed in Table 10c, where data is normalised, a two-year overlap can be seen in 1995/96 and 1996/97. This suggests that the cluster represents a group recruited over two years, with productive service starting in 1988. The 2000/01 figures in Table 11c reflect only 11 months' data, but the figures are projected forward to show the forecast for the year.

12.3 Tables 11a, 11b, and 11c provide similar information on SPADs involving drivers in various age bands. In Table 11b an additional column shows the percentage of drivers in each band. Table 11c continues to show a remarkably consistent spread of SPADs through all age bands. The general conclusion remains that age does not seem to have a significant impact on SPAD propensity.

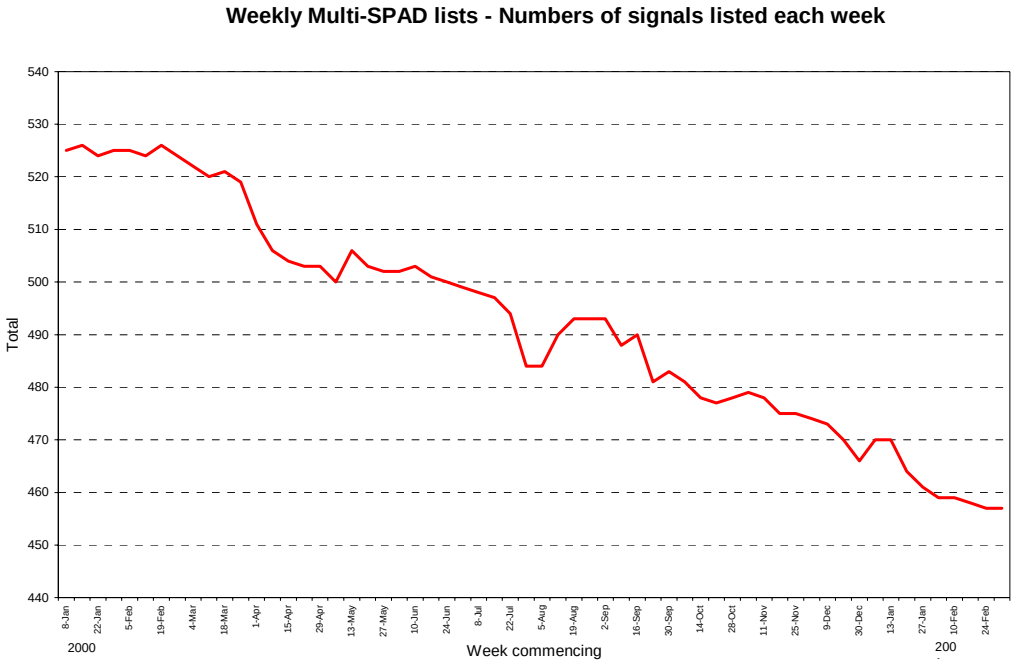
12.4 The data used to normalise by age and experience is obtained from train operators and is updated annually. We have recently written to all train operators asking for the annual update. So far 17 out of the 40 companies approached have responded. We would like to take this opportunity to thank all the operating companies for their co-operation in providing this data, and to encourage a prompt response from those who have yet to do so.

13 Multi-SPADed Signals

13.1 Table 12a shows the numbers of events where there has then been more than one SPAD since 1985, and more than one at the signal in five years (the current definition of a multi-SPAD incident), in the six complete years since 1994/95, plus this year to date. Table 12b shows the same data in percentage terms. After 11 months it is clear that, whilst during the last six complete years the proportion of SPADs which are multi-SPAD events has remained consistently around 40% of all SPADs (using the current definition), this year's figure has reduced consistently and is now steady at 31%. This is evidence that progress has been made in reducing the impact of the multi-SPAD phenomenon.

13.2 Table 12c extends the year-by-year analysis of tables 12a and 12b into a month-by-month view of more recent multi-SPAD incidents, giving also their percentage of all SPADs. Unlike the yearly analysis, there are variations but no established trend.

13.3 Further evidence that the effort on multi-SPAD signals has had some effect is given by the following graph which plots the number of signals entered on our weekly list of multi-SPADed signals. At the beginning of 2000 we were listing over 520 signals, but the number has dropped steadily to below 460, a 12% reduction, despite a blip early in January. Since signals drop off the list only when their second-to-last SPAD record is at least five years old, the actual level of improvement in multi-SPAD propensity must be considerably better than 12%.



14 Multi-SPAD Drivers

14.1 The multi-SPADing driver is a factor distinctly different to the multi-SPADed signal. Because there are fewer drivers than signals, the random effect is less marked, whilst the records for drivers are not as well established as for signals. Furthermore although a driver is involved in every SPAD, they may not be held responsible for the incident. Records reveal whether a driver was wholly or partially to blame, but within that category there are degrees of responsibility. Often a driver and a signaller will be found jointly to blame, through a failure to communicate safety critical information effectively.

14.2 There are around 10 SPADs each month which involve a driver with a previous SPAD record. In Table 13 we present first the number of SPADs where the driver has had one or more previous SPADs over the last six years plus this year to February. We then present the data as a percentage of SPADs, both when the driver was held to be at least partially to blame, and as a percentage of all SPADs. Finally we repeat the analysis looking only at drivers who have had more than one SPAD at a signal on the multi-SPAD list.

14.3 With one month to go, the 2000/01 figure of 93 SPADs where the drivers then had more than one SPAD recorded is already 20% higher than for the whole of 1999/2000; projecting forward to the end of March, the difference is likely to be more than 30%. Multi-SPAD driver propensity does not manifest itself as often as it did last year at multi-SPADed signals, where the equivalent figure is down by 39%. However, 29% of all SPADs where the driver was held wholly or partly to blame are by drivers with a previous SPAD record. Furthermore, Table 1 shows that eight SPADs in February involved drivers who reached their third, or in one case fourth SPAD. This is an issue which demands attention by train operators. Is there, for instance a link with the cluster of drivers referred to in paragraph 12.2 who appear to have a high SAD propensity?

15 Responsibility for SPAD

15.1 Reporting rules require that the roles of all people involved in a SPAD be entered into SMIS. However, the responsibility can be shared either with another person or with environmental or equipment factors. There is no limit to the number of people and other factors which can be entered as jointly responsible.

15.2 Table 14a gives the breakdown since 1994/95 of SPADs where responsibility has been allocated to an individual or to weather, rail, or vegetation conditions. The data is presented in Table 14b as a percentage of all SPADs. As might be expected, drivers are allocated by far the greatest responsibility. Of the remainder handsignallers are allocated about 50% of the non-driver responsibility. However, when partial responsibility is considered, at Tables 14c and 14d, people in charge of a possession (PICOP) and signallers (including level crossing keepers) have more allocations than handsignallers.

16 Reporting Performance

16.1 The time taken to investigate SPADs and to report the full circumstances of their occurrence through the SMIS data collection system is significant because any corrective action which might be required should be applied as quickly as possible.

16.2 Railway Group Standard GO/RT3252 requires SPAD investigations to be completed within eight weeks of the event unless exceptional circumstances apply.

16.3 The latest position is shown in Table 15. It is based on SMIS records, and the cut-off time for data extraction was 0800 on 8 February. An "active" record is one which has been opened in SMIS but not closed. Records which are "force finalised" do not contain all required data and are shown in the final column of Table 15. In some circumstances the SMIS rules engine gave input staff no option but to force-close a record, but this would not apply to records entered since May 2000. Although Table 15 shows reporting performance by zone, train operators must also take positive action to ensure that the zones have all the data necessary. The responsibility to close a report within eight weeks, other than in exceptional circumstances, is a joint responsibility.

16.4 In assessing performance against the Railway Group Standard we use a generous cut-off point and ignore the last two months listed. Thus, ignoring January and February figures in Table 15, Midlands are fully up to date in finalising records, and North West has only one outstanding. Scotland and Southern both have five active records, whilst London North Eastern has seven still active Midland and Great Western has 13. East Anglia have opened some old records to incorporate recommendations tracking details and as a result currently have 17 open, but we applaud this initiative.

APPENDIX A

Table 1 - SPADs on Railtrack-controlled infrastructure in February 2001

Date	Time	Signal	Location	Train Operator	Class	Zone	Overrun	Overlap	Total SPAD	Date of Previous SPAD	Severity No	Total Driver	Date of Driver's Previous SPAD	HMRI code	SAS
01/02/2001	09:18	WA292	Mortimer	Thames	2	SO	10	300	1		1	2	06/11/1994	1	N
01/02/2001	10:49	SH8	Shephers Well	Connex SE	1	SO	300	200	1		3	2	15/08/1991	3	N
01/02/2001	11:10	L484	Harold Wood	First GE	1	EA	100	200	1		2	2	06/05/1993	2	N
01/02/2001	13:49	CA293	Ely North Jcn	WAGN	1	EA	20	200	2	14/02/2000	1	1		2	N
01/02/2001	18:17	M101	Dam Dykes L C	GNER	1	LNE	75	0	1		2	1		2	N
01/02/2001	18:29	S57	Dore Station Jcn	Central	1	LNE	3	200	3	20/02/1998	1	1		2	N
01/02/2001	19:40	WM312	Camden Jcn	Virgin WC	1	MD	30	200	1		2	1		2	N
01/02/2001	03:34	SN202	Acton Main Line	EWS	6	GW	5	220	1		1	3	28/07/1997	2	N
02/02/2001	22:02	SY179	Bordesley Jcn	Central	5	MD	1	200	4	08/07/1995	1	2	25/03/1991	2	N
02/02/2001	12:52	W112	West London Jcn	SWT	1	SO	40	150	3	22/12/1999	2	1			N
02/02/2001	12:16	MP332	Ardwick	N Spirit	1	NW	2	70	11	10/01/1999	1	1		3	N
03/02/2001	19:20	OX137	Oxford CS	Thames	5	GW	39	1	1		3	1		3	O
03/02/2001	21:32	L772	Neville Hill	Mid ML	5	LNE	600	0	2	23/08/1987	3	0		3	O
03/02/2001	11:59	D719	Dundee Central Jcn	GNER	1	SC	3	200	1		1	4	15/03/1998	2	N
04/02/2001	14:02	Y305	York	N Spirit	1	LNE	6	309	9	10/02/1998	1	1		2	N
05/02/2001	14:05	B67	Keynsham	Wales	2	GW	880	250	1		3	3	07/11/2000	3	O
07/02/2001	08:54	PA334	Newton-On-Ayr	EWS	0	SC	3	150	4	13/11/1995	1	1		2	N
09/02/2001	18:10	YW15	Basingstoke	Fliner	4	SO	43	200	1		2	1		1	N
09/02/2001	09:40	OC4	Ollerton Colliery	EWS	7	LNE	507	0	1		3	3	26/05/1998	3	N
13/02/2001	13:41	UR653	Purfleet Rifle Range L C	c2c	2	EA	30	200	3	20/09/1999	2	2	07/09/1998	2	N
14/02/2001	18:23	PR112	Probus	First GW	1	GW	35	240	1		2	3	02/05/1998	2	N
16/02/2001	16:30	UM160	Taunton	Virgin CC	1	GW	48	200	2	21/06/1995	2	3	24/07/1993	2	N
16/02/2001	22:30	T93	East Croydon	Gatwick Ex	1	SO	45	50	2	15/03/1991	2	1		1	N
16/02/2001	13:49	St Andrews	Bristol T M P11	Wales	2	GW	50	1	4	28/06/1993	3	1		2	N
17/02/2001	14:15	82	Stirling Middle	Scotrail	1	SC	13	240	3	14/10/1999	1	2	27/02/1995	2	N

Table 1 - SPADs on Railtrack-controlled infrastructure in February 2001 (continued…)

Date	Time	Signal	Location	Train Operator	Class	Zone	Overrun	Overlap	Total SPAD	Date of Previous SPAD	Severity No	Total Driver	Date of Driver's Previous SPAD	HMRI code	SAS
20/02/2001	11:15	E310	Exeter Central	Wales	2	GW	40	200	3	28/09/1998	2	3	03/03/1993	2	N
20/02/2001	13:00	L662	South Elmsall	N Spirit	2	LNE	240	0	1		3	3	10/06/1998	2	N
20/02/2001	13:25	C13	St Fagans	Wales	2	GW	66	392	4	08/07/1998	2	1		2	N
21/02/2001	10:55	PT53	Stormy	EWS	6	GW	20	200	1		1	1		1	N
21/02/2001	13:50	T124	East Croydon	Connex SC	1	SO	40	150	5	05/06/1991	2	1		2	N
23/02/2001	00:23	SN232	Swindon	EWS	0	GW	300	1	1		3	1		3	O
24/02/2001	20:55	SN209	Ealing Broadway	Thames	2	GW	440	200	1		3	1		3	P
24/02/2001	13:39	SH10	Shepherds Well	Connex SE	1	SO	3	400	1		1	1		1	N
24/02/2001	15:06	L95	Bethnal Green	First GE	2	EA	80	50	2	07/08/1997	3	1		3	N
25/02/2001	09:03	E348	Southampton Airport	EWS	6	SO	300	200	1		3	2	26/03/1997	3	N
26/02/2001	11:15	PT464	Swansea	Wales	5	GW	25	200	1		1	0		1	N
26/02/2001	12:57	T534	Newcastle Central	GNER	1	LNE	119	200	2	12/03/1998	2	1		2	N
26/02/2001	13:24	W481	Leatherhead	SWT	1	SO	14	200	1		1	1		1	N
27/02/2001	23:47	SY203	Landor Street	EWS	7	MD	10	200	3	21/06/1999	1	1		2	N
27/02/2001	11:03	B12	Bristol East	Wales	1	GW	250	300	3	01/12/1995	3	1		3	N
27/02/2001	13:45	TJ17	Worcester Tunnel Jcn	EWS	6	GW	55	1	2	30/01/1997	3	1		1	N
27/02/2001	18:30	Stop Board	Old Oak Common	First GW	5	GW	96	1	1		4	1		1	N

Notes Total Driver column **0** = Provisionally driver not held responsible for SPAD.

SAS column **P** = Starting against signal at platform. **O** = Starting against signal not at platform.
N = Train did not start against signal. **U** = Not entered

Overlap Column This is a numeric field in SMIS and therefore will, by default, show zero (0) immediately on record creation. To distinguish between records were the overlap is confirmed as zero (0) and those for which details have not been input, which also show zero (0), the convention of using one (1) to indicate no overlap records has been adopted in SMIS and continued here.

Table 2a - All severity category SPADS on Railtrack-controlled infrastructure since 1994/95

Year	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Totals	F/Y totals
94/95	57	55	69	71	60	59	104	87	55	40	41	73	771	773
95/96	56	57	53	65	61	68	67	86	50	52	55	59	729	725
96/97	45	50	55	65	63	52	84	63	64	40	46	61	688	686
97/98	63	41	49	50	70	46	66	83	36	49	43	43	639	635
98/99	49	61	43	61	56	61	78	77	35	56	40	48	665	678
99/00	42	53	64	62	52	54	70	54	23	33	38	51	596	592
00/01	31	35	46	31	40	43	53	51	28	33	42		433	435
Monthly difference	*-20*	*4*	*11*	*-15*	*9*	*3*	*10*	*-2*	*-23*	*5*	*9*	*13*		
Monthly Average (6 years)	*48*	*50*	*52*	*56*	*57*	*54*	*70*	*69*	*39*	*44*	*44*	*56*	*681*	

*Note the end column is based on Railtrack's 13 - 4 weekly periods and for 00/01 is for periods 1 to 12 only

Table 2b - Serious SPADs (severity categories 3 to 8) on Railtrack-controlled infrastructure since 1994/95

Year	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Totals	F/Y totals
94/95	13	17	16	23	12	15	31	21	15	17	13	26	219	218
95/96	14	14	16	15	16	18	22	25	13	19	16	25	213	210
96/97	12	17	17	24	20	19	31	19	25	18	21	18	241	237
97/98	28	15	17	13	29	17	21	20	17	18	14	22	231	224
98/99	17	19	9	17	23	26	27	30	11	28	17	17	241	247
99/00	8	16	19	21	15	15	23	17	7	11	18	15	185	185
00/01	11	18	19	14	18	18	25	21	11	9	14		178	177
Monthly difference	*-4*	*7*	*1*	*-5*	*4*	*0*	*7*	*-4*	*-10*	*-2*	*5*	*-3*		
Average (6 years)	*15*	*17*	*16*	*17*	*20*	*19*	*25*	*22*	*14*	*17*	*17*	*21*	*222*	

*Note the end column is based on Railtrack's 13 - 4 weekly periods and for 00/01 is for periods 1 to 12 only

Incidents included in Serious SPADs now cover any incident where overrun was greater than overlap, all overruns greater than 200 yards, all Track damage, Derailments, Collisions, Injuries and Fatalities to staff or passengers.

Table 3a - Signal category and type of signal (totals)

Signal Category	Totals 94/95	95/96	96/97	97/98	98/99	99/00	00/01
Colour light signals	526	516	463	514	536	495	328
Position light	55	45	56	57	87	50	53
Semaphores	25	33	39	26	27	29	27
Discs	4	9	4	5	2	7	1
Stop/Marker/LOS	20	13	11	12	11	10	11
Handsignals	0	0	1	1	0	0	0
Other	0	0	1	2	1	3	4
Not entered	141	113	113	22	1	2	9
Signal Control							
Automatic	36	41	28	65	52	61	29
Controlled	552	539	513	529	589	517	376
Semi-Automatic	10	11	6	4	11	3	5
Fixed	1	0	1	5	11	13	14
Intermediate block	7	2	6	2	1	2	2
Other	24	23	19	12	0	0	0
Not entered	141	113	115	22	1	0	7
Totals	771	729	688	639	665	596	433

Table 3b - Signal category and type of signal (percentages)

Signal Category	Totals 94/95	95/96	96/97	97/98	98/99	99/00	00/01
Colour light signals	68%	71%	67%	80%	81%	83%	76%
Position light	7%	6%	8%	9%	13%	8%	12%
Semaphores	3%	5%	6%	4%	4%	5%	6%
Discs	1%	1%	1%	1%	0%	1%	0%
Stop/Marker/LOS	3%	2%	2%	2%	2%	2%	3%
Handsignals	0%	0%	0%	0%	0%	0%	0%
Other	0%	0%	0%	0%	0%	1%	1%
Not entered	18%	16%	16%	3%	0%	0%	2%
Signal Control							
Automatic	5%	6%	4%	10%	8%	10%	7%
Controlled	72%	74%	75%	83%	89%	87%	87%
Semi-Automatic	1%	2%	1%	1%	2%	1%	1%
Fixed	0%	0%	0%	1%	2%	2%	3%
Intermediate block	1%	0%	1%	0%	0%	0%	0%
Other	3%	3%	3%	2%	0%	0%	0%
Not entered	18%	16%	17%	3%	0%	0%	2%

Table 4a - Total SPADs by severity category

Severity category	Totals 94/95	95/96	96/97	97/98	98/99	99/00	00/01
1	333	276	265	226	230	225	151
2	219	240	182	182	194	186	104
3	152	173	192	188	188	158	149
4	54	27	32	25	34	13	12
5	6	9	12	11	14	9	13
6	2	0	1	1	0	0	2
7	4	4	3	5	5	4	2
8	1	0	1	1	0	1	0
totals	771	729	688	639	665	596	433

Table 4b - Percentage of SPADs by severity category

Severity category	Percentages 94/95	95/96	96/97	97/98	98/99	99/00	00/01
1	43%	38%	39%	35%	35%	38%	35%
2	28%	33%	26%	28%	29%	31%	24%
3	20%	24%	28%	29%	28%	27%	34%
4	7%	4%	5%	4%	5%	2%	3%
5	1%	1%	2%	2%	2%	2%	3%
6	0%	0%	0%	0%	0%	0%	0%
7	1%	1%	0%	1%	1%	1%	0%
8	0%	0%	0%	0%	0%	0%	0%

Table 4c - Severity category definitions

1 Overrun 0 to 25 yards, overrun not exceeding overlap, and no damage, Injuries or deaths.
2 Overrun 26 to 200 yards, overrun not exceeding overlap, and no damage, injuries or deaths.
3 Overrun greater than overlap plus all overruns greater than 200 yards and no damage, injuries or deaths.
4 Track damage only with no casualties.
5 Derailment with no collision and no casualties.
6 Collision (with or without derailment) and no casualties.
7 Injuries to staff or passengers with no fatalities.
8 Fatalities to staff or passengers.

Table 5a - Starting against signal (SAS) SPADs

Location	Totals						
	94/95	**95/96**	**96/97**	**97/98**	**98/99**	**99/00**	**00/01**
Platform	59	59	51	46	56	43	42
Other	56	68	63	66	68	72	53
Totals all SAS	115	127	114	112	124	115	95
Total all SPAD	771	729	688	639	665	596	433

Table 5b - Starting against signal (SAS) SPADs (percentages)

Location	Percentages						
	94/95	**95/96**	**96/97**	**97/98**	**98/99**	**99/00**	**00/01**
Platform	8%	8%	7%	7%	8%	7%	10%
Other	7%	9%	9%	10%	10%	12%	12%
% of total	15%	17%	17%	18%	19%	19%	22%

Table 5c - Starting against signal (SAS) SPADs - Use of DRA

		Platform					Other					*Totals*		
Year	Month	Not fitted	Fitted and used	Fitted and not used	Not applicable	Status unknown	Not fitted	Fitted and used	Fitted and not used	Not applicable	Status unknown	*Platform*	*Other*	*Total*
1999	Apr	0	0	3	0	0	1	1	1	0	1	*3*	*4*	*7*
	May	0	1	1	0	0	2	0	1	2	3	*2*	*8*	*10*
	Jun	0	3	0	1	0	2	1	2	2	1	*4*	*8*	*12*
	Jul	0	0	2	0	0	2	2	1	1	0	*2*	*6*	*8*
	Aug	0	1	1	0	0	4	1	3	0	1	*2*	*9*	*11*
	Sep	1	2	1	0	0	3	0	3	0	0	*4*	*6*	*10*
	Oct	3	2	7	0	0	5	0	2	1	2	*12*	*10*	*22*
	Nov	2	2	0	0	0	1	0	1	0	0	*4*	*2*	*6*
	Dec	0	1	2	0	0	0	1	1	0	0	*3*	*2*	*5*
2000	Jan	0	1	1	0	0	4	0	0	0	1	*2*	*5*	*7*
	Feb	0	0	0	0	0	2	3	3	0	0	*0*	*8*	*8*
	Mar	1	1	3	0	0	3	1	0	0	0	*5*	*4*	*9*
	Apr	1	0	2	0	0	1	2	1	0	0	*3*	*4*	*7*
	May	0	1	0	0	1	2	0	4	0	0	*2*	*6*	*8*
	Jun	1	2	1	0	0	1	2	1	0	0	*4*	*4*	*8*
	Jul	2	2	2	0	0	2	0	0	0	0	*6*	*2*	*8*
	Aug	1	4	1	0	0	1	0	0	0	0	*6*	*1*	*7*
	Sep	1	0	4	0	0	3	2	3	0	1	*5*	*9*	*14*
	Oct	0	1	2	0	0	5	2	0	0	0	*3*	*7*	*10*
	Nov	0	0	2	0	0	4	0	0	0	2	*2*	*6*	*8*
	Dec	1	2	1	0	0	0	1	3	0	1	*4*	*5*	*9*
	Jan	1	1	1	0	3	1	1	3	0	0	*6*	*5*	*11*
	Feb	0	0	0	0	1	0	1	1	0	2	*1*	*4*	*5*

Table 6a - Zone performances - year on year totals

Zone	Totals						
	94/95	**95/96**	**96/97**	**97/98**	**98/99**	**99/00**	**00/01**
East Anglia	84	86	80	70	82	64	51
Great Western	128	106	104	97	85	61	79
London North Eastern	106	102	102	87	91	94	57
Midlands	109	114	123	103	112	110	56
North West	113	108	100	100	94	87	54
Scotland	70	57	53	50	51	56	44
Southern	161	156	126	132	150	124	92
totals	771	729	688	639	665	596	433

Table 6b - Zone performances - year on year percentages

Zone	Performance						
	94/95	**95/96**	**96/97**	**97/98**	**98/99**	**99/00**	**00/01**
East Anglia	11%	12%	12%	11%	12%	11%	12%
Great Western	17%	15%	15%	15%	13%	10%	18%
London North Eastern	14%	14%	15%	14%	14%	16%	13%
Midlands	14%	16%	18%	16%	17%	18%	13%
North West	15%	15%	15%	16%	14%	15%	12%
Scotland	9%	8%	8%	8%	8%	9%	10%
Southern	21%	21%	18%	21%	23%	21%	21%

Table 6c - Zone performance - month by month totals

Year	Month	Totals						
		East Anglia	Great Western	London North Eastern	Midlands	North West	Scotland	Southern
1999	Apr	3	8	3	10	7	3	8
	May	6	5	11	13	4	6	8
	Jun	3	6	9	16	10	5	15
	Jul	4	7	12	8	13	3	15
	Aug	6	10	9	6	6	3	12
	Sep	10	3	6	9	9	5	12
	Oct	8	7	11	12	10	7	15
	Nov	7	1	8	12	12	3	11
	Dec	2	4	3	2	3	4	5
2000	Jan	4	1	8	6	6	3	5
	Feb	4	5	6	6	2	5	10
	Mar	7	4	8	10	5	9	8
	Apr	3	6	5	4	4	5	4
	May	3	7	5	5	5	3	7
	Jun	6	13	7	10	3	3	4
	Jul	3	4	4	1	5	7	7
	Aug	5	1	4	6	8	5	11
	Sep	5	5	5	5	8	4	11
	Oct	5	8	6	8	7	5	14
	Nov	6	12	6	8	5	2	12
	Dec	4	5	6	1	1	4	7
2001	**Jan**	7	3	2	5	7	3	6
	Feb	4	15	7	3	1	3	9

Table 6d - Zone performance - month by month percentages

Year	Month	Totals						
		East Anglia	Great Western	London North Eastern	Midlands	North West	Scotland	Southern
1999	Apr	7%	19%	7%	24%	17%	7%	19%
	May	11%	9%	21%	25%	8%	11%	15%
	Jun	5%	9%	14%	25%	16%	8%	23%
	Jul	6%	11%	19%	13%	21%	5%	24%
	Aug	12%	19%	17%	12%	12%	6%	23%
	Sep	19%	6%	11%	17%	17%	9%	22%
	Oct	11%	10%	16%	17%	14%	10%	21%
	Nov	13%	2%	15%	22%	22%	6%	20%
	Dec	9%	17%	13%	9%	13%	17%	22%
2000	Jan	12%	3%	24%	18%	18%	9%	15%
	Feb	11%	13%	16%	16%	5%	13%	26%
	Mar	14%	8%	16%	20%	10%	18%	16%
	Apr	10%	19%	16%	13%	13%	16%	13%
	May	9%	20%	14%	14%	14%	9%	20%
	Jun	13%	28%	15%	22%	7%	7%	9%
	Jul	10%	13%	13%	3%	16%	23%	23%
	Aug	13%	3%	10%	15%	20%	13%	28%
	Sep	12%	12%	12%	12%	19%	9%	26%
	Oct	9%	15%	11%	15%	13%	9%	26%
	Nov	12%	24%	12%	16%	10%	4%	24%
	Dec	14%	18%	21%	4%	4%	14%	25%
2001	**Jan**	21%	9%	6%	15%	21%	9%	18%
	Feb	10%	36%	17%	7%	2%	7%	21%

Table 6e - Train operator performance - year on year totals with forecast

Train Operator	Totals							
	00/01	Forecast	99/00	98/99	97/98	96/97	95/96	94/95
Amec Rail	1	1	0	2	0	0	0	0
Amey Railways	0	0	3	0	0	0	0	0
Anglia Railways Train Services Ltd.	8	9	7	5	7	9	18	11
Balfour Beatty Rail	2	2	5	6	7	2	2	6
c2c	7	8	13	11	12	12	21	10
Cardiff Railway Co. Ltd.	8	9	4	1	4	11	3	3
Centrac Ltd.	2	2	2	6	4	3	0	1
Central Trains Ltd.	28	31	40	58	41	46	50	51
Chiltern Railway Co. Ltd.	0	0	5	7	4	9	5	2
Connex South Central Ltd.	24	26	29	33	28	25	34	40
Connex South Eastern Ltd.	25	27	33	41	49	36	50	52
Departmental	0	0	0	0	1	0	2	3
Direct Rail Services Ltd	0	0	1	0	0	0	0	0
English Welsh and Scottish Railways	83	91	98	127	116	130	117	126
Eurostar UK Ltd.	0	0	1	2	0	0	2	0
First Engineering Ltd.	3	3	2	1	1	2	0	1
Freightliner Ltd.	10	11	15	14	13	19	3	0
Gatwick Express Railway Co. Ltd.	1	1	1	4	1	2	2	8
GrantRail Ltd.	0	0	0	0	2	0	0	0
Great Eastern Railways Ltd.	18	20	18	25	18	25	23	26
Great North Eastern Railways Ltd.	11	12	6	7	9	14	8	8
Great Western Trains Co. Ltd.	7	8	0	6	16	10	15	12
GT Railway Maintenance Ltd.	0	0	0	0	0	0	0	0
Heathrow Express Ltd.	2	2	2	2	0	0	0	0
Hull Trains Ltd	0	0	0	0	0	0	0	0
ISU Sth Wales & W	0	0	0	0	4	8	15	11
Jarvis Facilities	5	5	9	5	12	4	0	5
London Underground Ltd.	3	3	13	13	14	7	1	2
Merseyrail Electrics Ltd.	9	10	6	14	21	23	22	34
Midland Main Line Ltd.	4	4	6	2	1	6	4	2
North Western Trains Ltd.	28	31	37	40	47	40	59	61
Northern Spirit Ltd.	21	23	42	28	48	49	45	52
Other/Unknown	0	0	2	1	2	3	3	9
Scotrail Railways Ltd.	29	32	42	34	25	35	35	53
Serco Metrolink	0	0	0	4	2	0	3	0
Serco Railtest	2	2	2	0	0	4	0	0
Silverlink Train Services Ltd.	5	5	14	7	13	14	15	12
South West Trains Ltd.	24	26	43	43	36	35	42	38
Thames Trains Ltd.	13	14	10	16	9	17	28	32
Thameslink Rail Ltd.	3	3	12	18	14	9	15	6
Virgin CrossCountry Ltd.	11	12	12	22	16	19	21	18
Virgin West Coast Ltd.	4	4	12	10	4	7	11	10
Wales & West Passenger Trains	21	23	18	22	20	24	24	32
West Anglia & Great Northern Railways	11	12	31	28	18	29	31	34
totals	***433***	***472***	***596***	***665***	***639***	***688***	***729***	***771***

Table 7a - Causes of SPADs all severity categories (totals)

Cause	Totals						
	94/95	95/96	96/97	97/98	98/99	99/00	00/01
Anticipation of signal clearance	36	32	37	39	41	29	19
Failure to check signal aspect	108	114	123	113	110	119	63
Failure to locate signal	57	55	67	46	63	45	41
Failure to react to caution signal	114	136	138	162	158	160	100
Ignorance of rules/instructions	7	10	5	6	16	7	8
Violation of rules/instructions	42	49	37	25	38	40	25
Wrong information given	14	20	14	11	11	7	9
Ambiguous or incomplete information given	15	12	13	8	6	19	10
Information not given	5	4	3	2	3	0	3
Correct information given but misunderstood	6	7	5	5	5	4	5
Viewed wrong signal	33	36	45	29	43	30	23
Viewed correct signal but misread aspect	28	15	12	15	13	28	11
Misread previous signal	4	8	7	5	11	6	7
Misjudged train behaviour	127	97	53	50	47	31	13
Misjudged environmental conditions	79	51	54	44	44	31	11
None of these	20	13	14	22	20	21	9
Other	29	16	25	36	5	4	17
Not yet categorised	47	54	36	21	31	15	59
Totals	771	729	688	639	665	596	433

Table 7b - Causes of SPADs all severity categories (percentages)

Cause	Percentage						
	94/95	95/96	96/97	97/98	98/99	99/00	00/01
Anticipation of signal clearance	5%	4%	5%	6%	6%	5%	4%
Failure to check signal aspect	14%	16%	18%	18%	17%	20%	15%
Failure to locate signal	7%	8%	10%	7%	9%	8%	9%
Failure to react to caution signal	15%	19%	20%	25%	24%	27%	23%
Ignorance of rules/instructions	1%	1%	1%	1%	2%	1%	2%
Violation of rules/instructions	5%	7%	5%	4%	6%	7%	6%
Wrong information given	2%	3%	2%	2%	2%	1%	2%
Ambiguous or incomplete information given	2%	2%	2%	1%	1%	3%	2%
Information not given	1%	1%	0%	0%	0%	0%	1%
Correct information given but misunderstood	1%	1%	1%	1%	1%	1%	1%
Viewed wrong signal	4%	5%	7%	5%	6%	5%	5%
Viewed correct signal but misread aspect	4%	2%	2%	2%	2%	5%	3%
Misread previous signal	1%	1%	1%	1%	2%	1%	2%
Misjudged train behaviour	16%	13%	8%	8%	7%	5%	3%
Misjudged environmental conditions	10%	7%	8%	7%	7%	5%	3%
None of these	3%	2%	2%	3%	3%	4%	2%
Other	4%	2%	4%	6%	1%	1%	4%
Not yet categorised	6%	7%	5%	3%	5%	3%	14%

Table 7c - Causes of SPADs severity categories 3 to 8 (totals)

Cause	Totals						
	94/95	95/96	96/97	97/98	98/99	99/00	00/01
Anticipation of signal clearance	4	7	7	7	9	11	8
Failure to check signal aspect	56	60	68	62	57	55	35
Failure to locate signal	19	18	28	16	31	11	23
Failure to react to caution signal	13	14	22	27	20	21	10
Ignorance of rules/instructions	5	4	3	3	8	4	7
Violation of rules/instructions	25	27	21	19	21	18	13
Wrong information given	8	10	8	10	8	5	6
Ambiguous or incomplete information given	8	8	12	6	6	13	8
Information not given	2	2	3	0	2	0	3
Correct information given but misunderstood	3	5	5	3	4	1	4
Viewed wrong signal	12	12	16	14	26	11	11
Viewed correct signal but misread aspect	17	9	5	10	10	15	9
Misread previous signal	0	0	0	3	0	0	1
Misjudged train behaviour	4	7	7	8	9	5	2
Misjudged environmental conditions	9	6	9	5	9	3	3
None of these	8	8	4	9	8	6	5
Other	6	1	9	17	4	1	7
Not yet categorised	20	15	14	12	9	5	23
Totals	219	213	241	231	241	185	178

Table 7d - Causes of SPADs severity categories 3 to 8 (percentages)

Cause	Percentage						
	94/95	95/96	96/97	97/98	98/99	99/00	00/01
Anticipation of signal clearance	2%	3%	3%	3%	4%	6%	4%
Failure to check signal aspect	26%	28%	28%	27%	24%	30%	20%
Failure to locate signal	9%	8%	12%	7%	13%	6%	13%
Failure to react to caution signal	6%	7%	9%	12%	8%	11%	6%
Ignorance of rules/instructions	2%	2%	1%	1%	3%	2%	4%
Violation of rules/instructions	11%	13%	9%	8%	9%	10%	7%
Wrong information given	4%	5%	3%	4%	3%	3%	3%
Ambiguous or incomplete information given	4%	4%	5%	3%	2%	7%	4%
Information not given	1%	1%	1%	0%	1%	0%	2%
Correct information given but misunderstood	1%	2%	2%	1%	2%	1%	2%
Viewed wrong signal	5%	6%	7%	6%	11%	6%	6%
Viewed correct signal but misread aspect	8%	4%	2%	4%	4%	8%	5%
Misread previous signal	0%	0%	0%	1%	0%	0%	1%
Misjudged train behaviour	2%	3%	3%	3%	4%	3%	1%
Misjudged environmental conditions	4%	3%	4%	2%	4%	2%	2%
None of these	4%	4%	2%	4%	3%	3%	3%
Other	3%	0%	4%	7%	2%	1%	4%
Not yet categorised	9%	7%	6%	5%	4%	3%	13%

Table 8a - Serious Hazard ranked SPADs (totals)

Hazard Ranking	Totals						
	94/95	**95/96**	**96/97**	**97/98**	**98/99**	**99/00**	**00/01**
Total Serious hazard ranked (1or A or a)	284	231	232	185	253	202	102
Serious consequences (1)	181	118	106	77	106	70	63
Very important equipment/environmental (A)	95	90	113	90	128	101	31
Major Human responsibility (a)	49	58	53	45	73	68	26
Total ranked	760	711	667	587	656	590	371

Table 8b - Serious Hazard ranked SPADs (percentages)

Hazard Ranking	Percentage						
	94/95	**95/96**	**96/97**	**97/98**	**98/99**	**99/00**	**00/01**
Total Serious hazard ranked (1or A or a)	37%	32%	34%	29%	38%	34%	24%
Serious consequences (1)	23%	16%	15%	12%	16%	12%	15%
Very important equipment/environmental (A)	12%	12%	16%	14%	19%	17%	7%
Major Human responsibility (a)	6%	8%	8%	7%	11%	11%	6%
Total ranked	99%	98%	97%	92%	99%	99%	86%

Table 9a - Rail conditions (totals)

Rail conditions	Totals						
	94/95	**95/96**	**96/97**	**97/98**	**98/99**	**99/00**	**00/01**
Unknown	293	270	194	25	3	1	6
Contaminated by previous train	0	1	1	0	1	1	0
Dry	311	326	330	424	446	445	294
Greasy	40	22	25	10	28	10	2
Ice/snow	0	0	0	0	1	2	4
Leaves	16	10	14	19	20	12	9
Not contaminated	0	0	0	0	25	35	19
Note entered	16	11	16	54	3	4	26
Wet	95	89	108	107	138	86	73
All types of contamination	56	33	40	29	50	25	15
Totals	771	729	688	639	665	596	433

Table 9b - Rail conditions (percentages)

Rail conditions	Percentages						
	94/95	**95/96**	**96/97**	**97/98**	**98/99**	**99/00**	**00/01**
Unknown	38%	37%	28%	4%	0%	0%	1%
Contaminated by previous train	0%	0%	0%	0%	0%	0%	0%
Dry	40%	45%	48%	66%	67%	75%	68%
Greasy	5%	3%	4%	2%	4%	2%	0%
Ice/snow	0%	0%	0%	0%	0%	0%	1%
Leaves	2%	1%	2%	3%	3%	2%	2%
Not contaminated	0%	0%	0%	0%	4%	6%	4%
Note entered	2%	2%	2%	8%	0%	1%	6%
Wet	12%	12%	16%	17%	21%	14%	17%
All types of contamination	7%	104%	106%	5%	107%	104%	3%

Table 10a - Drivers' experience (totals)

Experience	Totals						
	94/95	**95/96**	**96/97**	**97/98**	**98/99**	**99/00**	**00/01**
Unknown	33	39	41	76	158	80	77
1st year	113	102	77	103	53	69	54
2 - 5 year	250	193	163	96	96	93	69
6 - 10 year	82	117	153	155	151	139	90
11 - 15 year	81	57	48	47	48	74	57
16 - 20 year	55	73	61	56	49	57	27
21 - 25 year	40	43	55	41	42	42	24
26 - 30 year	56	59	44	24	25	14	10
31 - 35 year	44	32	25	26	26	20	15
36 - 40 year	15	11	18	11	13	3	8
41 - 45 year	2	3	3	4	4	5	2
Total with experience	738	690	647	563	507	516	356
Total all	771	729	688	639	665	596	433
Note total with experience excludes unknown figure							

Table 10b - Drivers' experience (percentages)

Experience	Percentages							
	94/95	**95/96**	**96/97**	**97/98**	**98/99**	**99/00**	**00/01**	**% of drivers**
Unknown	4%	5%	6%	12%	24%	13%	18%	
1st year	15%	15%	12%	18%	10%	13%	15%	**9%**
2 - 5 year	34%	28%	25%	17%	19%	18%	19%	**14%**
6 - 10 year	11%	17%	24%	28%	30%	27%	25%	**17%**
11 - 15 year	11%	8%	7%	8%	9%	14%	16%	**17%**
16 - 20 year	7%	11%	9%	10%	10%	11%	8%	**10%**
21 - 25 year	5%	6%	9%	7%	8%	8%	7%	**13%**
26 - 30 year	8%	9%	7%	4%	5%	3%	3%	**8%**
31 - 35 year	6%	5%	4%	5%	5%	4%	4%	**4%**
36 - 40 year	2%	2%	3%	2%	3%	1%	2%	**4%**
41 - 45 year	0%	0%	0%	1%	1%	1%	1%	**4%**
% with experience	96%	95%	94%	88%	76%	87%	82%	
Note unknown percentage is % of total SPADs whereas other percentages are % of total records with experience recorded.								

Table 10c - Average number of SPADs per 1000 drivers by experience group

Experience	Average No						
	94/95	**95/96**	**96/97**	**97/98**	**98/99**	**99/00**	**00/01**
All	*53*	*50*	*47*	*41*	*37*	*37*	*28*
1st year	92	83	62	83	43	56	48
2 - 5 year	129	100	84	50	50	48	39
6 - 10 year	35	50	65	66	64	59	42
11 - 15 year	35	24	21	20	21	32	27
16 - 20 year	37	50	42	38	33	39	20
21 - 25 year	22	24	31	23	23	23	15
26 - 30 year	50	52	39	21	22	12	10
31 - 35 year	80	58	45	47	47	36	30
36 - 40 year	30	22	36	22	26	6	18
41 - 45 year	4	6	6	8	8	9	4
Note : last column is a projection for the whole year							

Table 11a - Drivers' age (totals)

Age	Totals						
	94/95	**95/96**	**96/97**	**97/98**	**98/99**	**99/00**	**00/01**
Unknown	49	80	67	213	378	135	74
20 - 24	27	19	6	6	4	6	4
25 - 29	90	92	76	48	20	24	24
30 - 34	119	111	125	86	43	80	76
35 - 39	113	122	98	62	76	88	72
40 - 44	82	54	75	53	56	99	66
45 - 49	83	87	68	74	35	65	46
50 - 54	59	45	55	46	21	50	32
55 - 59	84	81	61	23	19	30	16
60 *	65	38	57	28	13	19	23
Total with age	722	649	621	426	287	461	359
Total all	771	729	688	639	665	596	433
Note total with age excludes unknown figure							

Table 11b - Drivers' age (percentages)

Age	Percentages							
	94/95	**95/96**	**96/97**	**97/98**	**98/99**	**99/00**	**00/01**	**% of drivers**
Unknown	6%	11%	10%	33%	57%	23%	17%	
20 - 24	4%	3%	1%	1%	1%	1%	1%	**1%**
25 - 29	12%	14%	12%	11%	7%	5%	7%	**7%**
30 - 34	16%	17%	20%	20%	15%	17%	21%	**19%**
35 - 39	16%	19%	16%	15%	26%	19%	20%	**21%**
40 - 44	11%	8%	12%	12%	20%	21%	18%	**18%**
45 - 49	11%	13%	11%	17%	12%	14%	13%	**10%**
50 - 54	8%	7%	9%	11%	7%	11%	9%	**11%**
55 - 59	12%	12%	10%	5%	7%	7%	4%	**7%**
60 *	9%	6%	9%	7%	5%	4%	6%	**6%**
% with age	94%	89%	90%	67%	43%	77%	83%	

Note "unknown" percentage is % of total SPADs whereas other percentages are % of total records with age recorded.

Table 11c - Average number of SPADs per 1000 drivers by age group

Age	SPADs per 1000						
	94/95	**95/96**	**96/97**	**97/98**	**98/99**	**99/00**	**00/01**
All	*52*	*47*	*45*	*31*	*21*	*33*	*28*
20 - 24	180	127	40	40	27	40	29
25 - 29	93	95	78	50	21	25	27
30 - 34	45	42	47	32	16	30	31
35 - 39	38	41	33	21	26	30	27
40 - 44	33	22	30	21	23	40	29
45 - 49	57	60	47	51	24	45	35
50 - 54	40	31	38	31	14	34	24
55 - 59	93	90	67	25	21	33	19
60 *	80	47	70	35	16	23	31

Note : last column is a projection for the whole year

Table 12a - Frequency of Multi-SPADed signals year on year totals

	Totals						
	94/95	**95/96**	**96/97**	**97/98**	**98/99**	**99/00**	**00/01**
More than one SPAD since 1985	377	335	361	332	377	323	210
More than one SPAD in last five years	316	281	284	240	273	222	135

Table 12b - Frequency of Multi-SPADed signals year on year percentages

	Percentage						
	94/95	**95/96**	**96/97**	**97/98**	**98/99**	**99/00**	**00/01**
More than one SPAD since 1985	49%	46%	52%	52%	57%	54%	48%
More than one SPAD in last five years	41%	39%	41%	38%	41%	37%	31%

Table 12c - Multi-SPADed signals and Multi SPAD drivers since Oct 1999

Year	Month	Signals with more than one SPAD in last five years		Multi-signals (current definition) passed by multi-drivers	
		Number of incidents	% of Months SPADs	Number of incidents	% of Months SPADs
1999	Oct	27	39%	8	11%
	Nov	15	28%	4	7%
	Dec	11	48%	6	26%
2000	Jan	12	36%	5	15%
	Feb	13	34%	3	8%
	Mar	15	29%	5	10%
	Apr	11	35%	4	13%
	May	10	29%	4	11%
	Jun	17	37%	8	17%
	Jul	6	19%	3	10%
	Aug	16	40%	3	8%
	Sep	9	21%	2	5%
	Oct	14	26%	5	9%
	Nov	15	29%	9	18%
	Dec	6	21%	3	11%
2001	Jan	18	55%	5	15%
	Feb	13	31%	5	12%

Table 13 - Multi-SPAD driver incidents year on year since 1994/95

	94/95	95/96	96/97	97/98	98/99	99/00	00/01
Drivers with more than one SPAD	42	48	48	43	56	93	112
Drivers with more than one SPAD as a percentage of "Drivers wholly or partly responsible" SPADs	6%	7%	7%	7%	9%	18%	29%
Drivers with more than one SPAD as a percentage of all SPADs	5%	7%	7%	7%	8%	16%	26%
Drivers with more than one SPAD at Multi-SPADed signals (current definition)	80	82	79	64	83	75	51
Drivers with more than one SPAD at Multi-SPADed signals (current definition) as a percentage of "Driver wholly or partly responsible" SPADs	11%	13%	12%	11%	13%	14%	13%
Drivers with more than one SPAD at Multi-SPADed signals (current definition) as a percentage of all SPADs	10%	11%	11%	10%	12%	13%	12%

Table 14a - Single cause wholly responsible (totals)

Responsibility with	Totals						
	94/95	95/96	96/97	97/98	98/99	99/00	00/01
Conductor	1	3	0	0	0	0	0
Conductor Driver	0	0	0	0	0	1	1
Driver	564	551	520	470	578	514	338
Trainee Driver	0	0	0	0	0	0	0
Equipment	13	12	8	3	3	3	2
Handsignaller	6	13	7	12	5	9	7
Other staff	9	9	3	3	2	0	1
PICOP/W	3	4	3	7	2	1	3
Pilotman	0	0	0	0	0	0	0
Platform staff	1	0	1	0	0	0	0
Route learner	0	0	0	0	0	0	0
Shunter	0	0	0	1	7	3	4
Signaller/Level crossing keeper	5	4	1	1	0	0	0
S&T staff	0	0	0	0	0	0	0
Traction Instructor/Inspector	1	0	0	1	0	0	0
Trainman	4	0	5	2	0	2	0
Weather/Rail conditions/Vegetation	13	17	14	8	20	14	11

Table 14b - Single cause wholly responsible (percentages)

Responsibility with	Percentages						
	94/95	95/96	96/97	97/98	98/99	99/00	00/01
Conductor	0.1%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Conductor Driver	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.2%
Driver	73.2%	75.6%	75.6%	73.6%	86.9%	86.2%	78.1%
Trainee Driver	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Equipment	1.7%	1.6%	1.2%	0.5%	0.5%	0.5%	0.5%
Handsignaller	0.8%	1.8%	1.0%	1.9%	0.8%	1.5%	1.6%
Other staff	1.2%	1.2%	0.4%	0.5%	0.3%	0.0%	0.2%
PICOP/W	0.4%	0.5%	0.4%	1.1%	0.3%	0.2%	0.7%
Pilotman	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Platform staff	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
Route learner	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Shunter	0.0%	0.0%	0.0%	0.2%	1.1%	0.5%	0.9%
Signaller/Level crossing keeper	0.6%	0.5%	0.1%	0.2%	0.0%	0.0%	0.0%
S&T staff	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Traction Instructor/Inspector	0.1%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%
Trainman	0.5%	0.0%	0.7%	0.3%	0.0%	0.3%	0.0%
Weather/Rail conditions/Vegetation	1.7%	2.3%	2.0%	1.3%	3.0%	2.3%	2.5%

Table 14c - Multi cause partly responsible (totals)

Responsibility with	Totals						
	94/95	95/96	96/97	97/98	98/99	99/00	00/01
Conductor	7	8	14	7	2	7	7
Conductor Driver	1	3	2	0	1	1	0
Driver	143	104	110	119	41	45	52
Trainee Driver	3	5	1	0	1	1	5
Equipment	30	27	26	15	4	2	4
Handsignaller	2	6	7	3	2	8	5
Other staff	13	11	13	5	1	4	0
PICOP/W	5	4	3	6	3	3	6
Pilotman	0	0	0	0	0	0	0
Platform staff	7	2	5	1	2	2	3
Route learner	6	2	1	1	0	0	0
Shunter	0	0	0	1	4	1	4
Signaller/Level crossing keeper	16	12	6	6	6	6	13
S&T staff	0	0	0	0	0	0	0
Traction Instructor/Inspector	4	3	3	0	0	0	0
Trainman	12	5	3	3	3	1	0
Weather/Rail conditions/Vegetation	64	50	49	18	19	14	13

Table 14d - Multi cause partly responsible (percentages)

Responsibility with	Percentages						
	94/95	95/96	96/97	97/98	98/99	99/00	00/01
Conductor	0.9%	1.1%	2.0%	1.1%	0.3%	1.2%	1.6%
Conductor Driver	0.1%	0.4%	0.3%	0.0%	0.2%	0.2%	0.0%
Driver	18.5%	14.3%	16.0%	18.6%	6.2%	7.6%	12.0%
Trainee Driver	0.4%	0.7%	0.1%	0.0%	0.2%	0.2%	1.2%
Equipment	3.9%	3.7%	3.8%	2.3%	0.6%	0.3%	0.9%
Handsignaller	0.3%	0.8%	1.0%	0.5%	0.3%	1.3%	1.2%
Other staff	1.7%	1.5%	1.9%	0.8%	0.2%	0.7%	0.0%
PICOP/W	0.6%	0.5%	0.4%	0.9%	0.5%	0.5%	1.4%
Pilotman	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Platform staff	0.9%	0.3%	0.7%	0.2%	0.3%	0.3%	0.7%
Route learner	0.8%	0.3%	0.1%	0.2%	0.0%	0.0%	0.0%
Shunter	0.0%	0.0%	0.0%	0.2%	0.6%	0.2%	0.9%
Signaller/Level crossing keeper	2.1%	1.6%	0.9%	0.9%	0.9%	1.0%	3.0%
S&T staff	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Traction Instructor/Inspector	0.5%	0.4%	0.4%	0.0%	0.0%	0.0%	0.0%
Trainman	1.6%	0.7%	0.4%	0.5%	0.5%	0.2%	0.0%
Weather/Rail conditions/Vegetation	8.3%	6.9%	7.1%	2.8%	2.9%	2.3%	3.0%

Table 15 - Active and finalised SMIS records

Zone	Year	Month	Totals	Active	%	Finalised	%	Force finalised
East Anglia	2000	Apr	3	1	33%	2	67%	
		May	3	1	33%	2	67%	
		Jun	6	3	50%	3	50%	
		Jly	3	2	67%	1	33%	
		Aug	5	2	40%	3	60%	
		Sep	5	2	40%	3	60%	
		Oct	5	1	20%	4	80%	
		Nov	6	2	33%	4	67%	
		Dec	4	2	50%	2	50%	
		Jan	7	6	86%	1	14%	
		Feb	4	4	100%	0	0%	
Great Western	2000	April	6	0	0%	6	100%	5
		May	7	0	0%	7	100%	5
		Jun	13	0	0%	13	100%	1
		Jly	4	0	0%	4	100%	2
		Aug	1	0	0%	1	100%	1
		Sep	5	2	40%	3	60%	
		Oct	8	2	25%	6	75%	
		Nov	12	6	50%	6	50%	
		Dec	5	3	60%	2	40%	
		Jan	3	2	67%	1	33%	
		Feb	15	15	100%	0	0%	
London North Eastern	2000	Apr	5	0	0%	5	100%	5
		May	5	0	0%	5	100%	3
		Jun	7	0	0%	7	100%	
		Jly	4	0	0%	4	100%	
		Aug	4	0	0%	4	100%	
		Sep	5	0	0%	5	100%	1
		Oct	6	0	0%	6	100%	1
		Nov	6	4	67%	2	33%	
		Dec	6	3	50%	3	50%	
		Jan	2	1	50%	1	50%	
		Feb	7	7	100%	0	0%	
Midlands	2000	Apr	4	0	0%	4	100%	
		May	5	0	0%	5	100%	
		Jun	10	0	0%	10	100%	
		Jly	1	0	0%	1	100%	
		Aug	6	0	0%	6	100%	
		Sep	5	0	0%	5	100%	
		Oct	8	0	0%	8	100%	
		Nov	8	0	0%	8	100%	
		Dec	1	0	0%	1	100%	
		Jan	5	0	0%	5	100%	
		Feb	3	1	33%	2	67%	

Table 15 - Active and finalised SMIS records (continued….)

Zone	Year	Month	Totals	Active	%	Finalised	%	Force finalised
North West	2000	Apr	4	0	0%	4	100%	4
		May	5	0	0%	5	100%	2
		Jun	3	0	0%	3	100%	
		Jly	5	0	0%	5	100%	
		Aug	8	0	0%	8	100%	1
		Sep	8	0	0%	8	100%	
		Oct	7	0	0%	7	100%	1
		Nov	5	0	0%	5	100%	
		Dec	1	1	100%	0	0%	
		Jan	7	6	86%	1	14%	
		Feb	1	1	100%	0	0%	
Scotland	2000	Apr	5	0	0%	5	100%	5
		May	3	0	0%	3	100%	2
		Jun	3	0	0%	3	100%	
		Jly	7	0	0%	7	100%	1
		Aug	5	0	0%	5	100%	1
		Sep	4	0	0%	4	100%	2
		Oct	5	0	0%	5	100%	2
		Nov	2	1	50%	1	50%	
		Dec	4	4	100%	0	0%	
		Jan	3	3	100%	0	0%	
		Feb	3	3	100%	0	0%	
Southern	2000	Apr	4	0	0%	4	100%	2
		May	7	0	0%	7	100%	1
		Jun	4	0	0%	4	100%	
		Jly	7	0	0%	7	100%	
		Aug	11	1	9%	10	91%	
		Sep	11	0	0%	11	100%	1
		Oct	14	1	7%	13	93%	
		Nov	12	1	8%	11	92%	
		Dec	7	2	29%	5	71%	
		Jan	6	5	83%	1	17%	
		Feb	9	8	89%	1	11%	
Data cut-off 08:00 Thursday 7 March 2001								

END