

# ANNUAL REPORT 2009

## Investigation of general interest rail network accidents and incidents



**Rail Accident Investigation Commission – CIAF. September 2011**

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**Rail Accident Investigation Commission – CIAF**

**Ministry of Public Works**

**State Secretariat for Transport**

**General Secretariat for Transport**

Paseo de la Castellana, 67

Madrid 28071

**September 2010**

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## 1.1 Purpose and scope

The Rail Accident Investigation Commission (*Comisión de Investigación de Accidentes Ferroviarios - CIAF*) was set up in December 2007 and after almost three full years of investigating rail accidents and incidents on the General Interest Rail Network (*Red Ferroviaria de Interés General - RFIG*) it now presents this annual report, the second produced during its existence and the fifth since Safety Directive 49/2004/EC established a requirement for an annual report to be produced detailing the investigations carried out each year by the national investigation body.

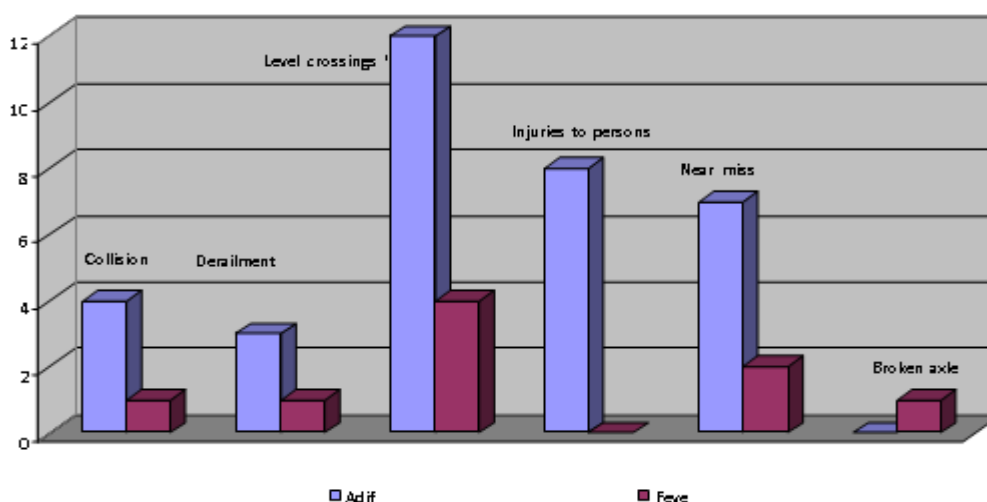
This report has been produced, within the required timescale, in accordance with Article 25 of Royal Decree 810/2007 which transposes the said Directive. As in previous years, it summarises all the technical investigations undertaken (all of them already concluded) which the CIAF has carried out on rail accidents and incidents which have occurred on the RFIG between 1 January and 31 December 2009 and which were notified by the administrators of the Adif and Feve infrastructure.

In the case of each investigation, where appropriate, one or more recommendations are formulated, and these are addressed to various organisations and are also sent to the Directorate General of Rail Infrastructures (*Dirección General de Infraestructuras Ferroviarias - DGIF*) so that, as the organisation acting as the National Safety Authority, it can conduct the appropriate analysis and, where necessary, oversee the adoption of the recommendations by the company or body concerned. For the first time, this document includes a brief description of the status of this overview by the DGIF, based on information supplied by the DGIF to the CIAF.

In the course of 2009 a total of 43 events on the General Interest Rail Network were investigated (out of a total of 70 notified), and they are categorised as follows:

Network	Accidents				Incidents		
	Collision	Derailement	Level crossing *	Injuries to persons	Near miss	Broken axle	Total
Adif	4	3	12	8	7	0	34
Feve	1	1	4	0	2	1	9
<b>Total</b>	<b>5</b>	<b>4</b>	<b>16</b>	<b>8</b>	<b>9</b>	<b>1</b>	<b>43</b>

\*Includes persons struck on level crossings.



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## **1.2 Implementation of Safety Directive 49/2004/EC**

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In Spain the legislative transition process which began with the enactment of the Railway Sector Act [*Ley del Sector Ferroviario*] (Law 39/2003 of 17 November, Official State Gazette No. 276 of 18 November) and its implementing regulations (Royal Decree 2387/2004, of 30 December, Official State Gazette No. 315 of 31 December) culminated in the approval of the Regulations on Traffic Safety in the General Interest Rail Network [*Reglamento sobre seguridad en la circulación de la Red Ferroviaria de Interés General*] (Royal Decree 810/2007 of 22 June, published in Official State Gazette No. 162 of 7 July), which transposed the Directive on safety on the Community's railways and repealed the provisions of the earlier accident investigation rules contained in the Railway Sector Regulations.

The entry into force of these new Regulations gave rise, amongst other things, to the creation of a new investigative body - the Rail Accident Investigation Commission (CIAF) - to replace the Railways Directorate [*Dirección General de Ferrocarriles*].

In November 2009 the Commission of the European Communities published **Directive 2009/149/EC of the Commission, amending Directive 2004/49/EC in relation to common safety indicators and common methods of calculating accident costs (published in the JOCE, L313/65)**, revising Annex 1 to the Safety Directive and adding an appendix of definitions of common safety indicators.

This new Directive was incorporated into Spanish law by Royal Decree 918/2010 of 16 July, published in Official State Gazette No. 189 of 5 August. This Decree partially amended the existing Royal Decree 810/2007.

## **1.3 CIAF activities**

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### **Plenary sessions**

In 2009 the Rail Accident Investigation Commission held plenary sessions once a month, except in August, which was the holiday period. During these meetings it was decided which events should be investigated amongst those notified to the CIAF during the period between sessions, and the technical investigators presented their reports on events which had been investigated, on the basis of which the Plenary approved their publication in the form of a final report, which would then be distributed to the interested parties and made public.

With the exception of the approval of a final report, which is in the form of a resolution, all decisions of the Plenary are in the form of agreements which are sent to the addressees. In the course of 2009 the Plenary issued 43 resolutions and 92 agreements.

### **Attendance at meetings of the European Railway Agency**

The CIAF forms part of the network of national investigation bodies ('NIBs') and attends the periodic meetings, generally three times a year, held at the Agency's offices in Lille.

This group, comprising the NIBs of various Member States, endeavours to ensure that the investigation of rail accidents and incidents is handled in a consistent manner and that the criteria established by the Safety

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Directive are applied in the same manner by everyone. It also acts as a forum for the exchange of information and experience between the investigation bodies.

In 2009 the CIAF, represented by its Secretary, attended three meetings (in January, June and October).

### Studies carried out

In November 2009 the CIAF completed the drafting of a '**Study relating to persons struck on the open track, at stations and at level crossings, 2005-2008**'.

The great majority of rail fatalities are due to persons and road vehicles being struck by trains. It was therefore considered opportune to analyse this problem from a global perspective, so as to try and reach some conclusions which would enable general recommendations to be made with the aim of reducing these fatalities.

The study looked at 221 fatalities occurring between 2005 and 2008 on the Adif and Feve networks, and various parameters were examined, broken down into the three categories.

The study concluded by issuing four recommendations relating to persons being struck on the open track, six relating to persons struck at stations or halts, and four relating to persons struck on level crossings.

### Other activities

On 3 November 2009 a Rail Accident Investigation Introductory Day was held. It was presented by one of the experts who work regularly for the CIAF and was attended by the group of regional experts from Ineco whose services are at the disposal of the Commission.

## **1.4 The rationale and objectives of accident and incident investigation**

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The purpose of investigating rail accidents is to ascertain their causes and the circumstances in which they occurred, with a view to preventing future accidents by making the appropriate recommendations to reduce risks in rail transport.

Investigations are not under any circumstances concerned with attributing blame or liability and are independent of any judicial investigation, as stated in Directive 49/2004/EC and specified in Article 21(6) of the Traffic Safety Regulations [*Reglamento sobre seguridad en la circulación*].

When different types of event (serious accident, accident, incident) are investigated, a technical report is then produced, containing full details of the events, the investigations carried out, the conclusions and, where appropriate, the recommendations made.

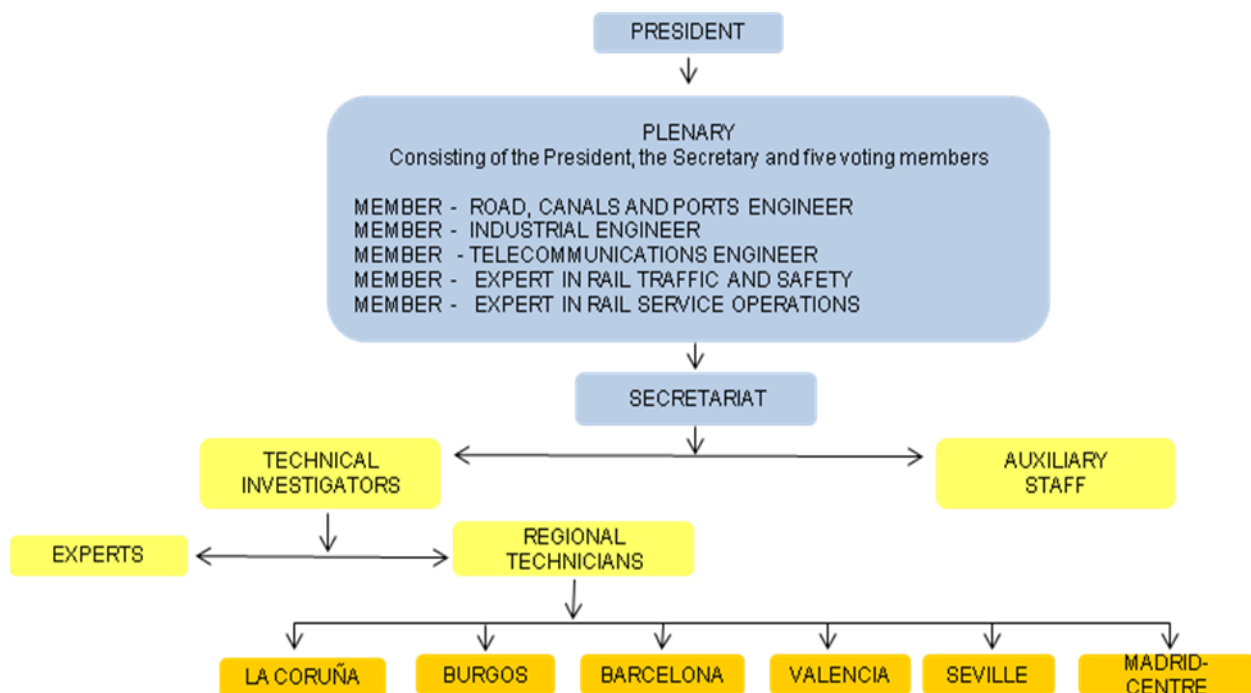
During its second full year of investigating rail accidents, the CIAF began investigating events (accidents and incidents) where the causality relates more to railway aspects than to imprudent behaviour by third parties.

## 2. ORGANISATIONAL STRUCTURE OF THE RAIL ACCIDENT AND INCIDENT INVESTIGATION COMMISSION

The Rail Accident Investigation Commission, which was set up on 11 December 2007, is a specialist collegiate body consisting of the President, the Plenary and the Secretariat. The Plenary in turn is made up of the President, five voting members and the Secretary.

The Commission is attached to the Ministry of Development and on 30 June 2009 it ceased to be a unit of the Secretariat General for Infrastructure and became a unit of the Undersecretariat. Then on 15 May 2010 it became part of the Secretariat General for Transport.

The following diagram shows its structure:



At the meeting of the Plenary on 24 February 2009 the President, Guillermo Vásquez Cabezas, announced that he was leaving due to new professional commitments. On 17 March Vicente Rallo Guinot was named as the new President and was introduced to the members of the Commission at the Plenary of 31 March.

The Commission has two technical investigators who are attached to the Secretariat and who are responsible for conducting the investigations and producing the relevant reports. They took up their posts on 25 February 2009. These technicians produce their reports with the collaboration of a team comprising the safety officers of the companies involved in the event being investigated.

The CIAF is also assisted by a territorial network of technicians supplied by the Ineco company on a contract basis. These technicians are permanently on call but are not assigned any exclusive role.

For the purpose of carrying out its tasks the CIAF has drawn a set of standard procedures which serve as the basis for determining the nature and the specific phases of any investigation.



Following an initial period during which it provisionally agreed to keep in place the Circular Orders which had governed the investigative process up to that time, the Rail Accident Investigation Commission drafted and approved the following Circular Orders in the first months of its operation: **Circular Order 1/2008 'Guidelines for the investigation of rail accidents falling within the responsibility of the Rail Accident Investigation Commission'** [*Pautas para la investigación técnica de los accidentes ferroviarios que competen a la Comisión de investigación de accidentes ferroviarios*] and **Circular Order 2/2008 'Notification of rail incidents and suicides'** [*Comunicación de los incidentes ferroviarios y los suicidios*] which established the basic guidelines which the CIAF would follow in the investigation of rail events for which it had responsibility.

It later published the document '**Technical investigation procedure for rail accidents and incidents'** (*Procedimiento de investigación técnica de los accidentes e incidentes ferroviarios*) published in October 2008, establishing basic guidelines and defining the investigative process for rail accidents and incidents. This procedure revoked Circular Order 1/2008, except for accidents to persons caused by moving rolling stock (not including those that occurred at level crossings).

In addition, in May 2009 the Commission supplemented the investigation guidelines with the publication of the '**Procedure for the technical investigation of accidents to persons caused by moving rolling stock'** [*Procedimiento para la investigación técnica de accidentes de personas producidas por material rodante en movimiento*], thereby revoking Circular Order 1/2008 in its entirety.

### 4.1 Categorisation of events

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The investigation of rail accidents and incidents conducted by the CIAF is based on the definitions of an accident, serious accident and incident and the terms of Article 21.3 of the [Regulations on Traffic Safety in the General Interest Rail Network \[Reglamento sobre seguridad en la circulación de la Red Ferroviaria de Interés General\]](#) (Royal Decree 810/2007 of 22 June), as follows:

**Accident:** *an unwanted or unintended sudden event or a specific chain of such events which have harmful consequences; accidents are divided into the following categories: collisions, derailments, level-crossing accidents, accidents to persons caused by moving rolling stock, fires and others.*

**Serious accident:** *any train collision or derailment resulting in the death of at least one person or serious injuries to five or more persons or extensive damage to rolling stock, the infrastructure or the environment, and any other similar accident with an obvious impact on the railway safety regulations or the management of safety; 'extensive damage' means damage that can immediately be assessed by the investigating body to cost at least EUR 2 million in total.*

**Incident:** *Any event other than an accident or serious accident, associated with the use and operation of trains or rolling stock and affecting traffic safety."*

**Article 21.3:** *In reaching a decision to investigate rail accidents not classed as serious and rail incidents, the Rail Accident Investigation Commission shall assess the following circumstances:*

- a) *the importance of the accident or incident;*
- b) *whether it forms part of a series of accidents or incidents with repercussions for the system as a whole;*
- c) *the repercussions for the safety of rail transport;*
- d) *requests from the Rail Infrastructure Administrator, the rail companies or the Minister for Development.*

The criterion adopted by the CIAF for the investigation of accidents has been that in addition to investigating serious accidents, which it is required to do, it would also investigate events (accidents and incidents) the analysis of which could lead to improvements in the safety of the rail system.

Thus, during the course of 2009, none of the fatal accidents which have occurred on the General Interest Rail Network and which were clearly attributable to imprudent behaviour by third parties were investigated, while other non-fatal accidents and incidents, such as derailments and near-miss collisions, were analysed because it was felt that examination of these events could offer lessons for reducing the incidence of such events.

## 4. INVESTIGATION OF ACCIDENTS AND INCIDENTS

### 4.2 Events investigated on the General Interest Rail Network: Investigations carried out

In 2009 a total of 43 events on the General Interest Rail Network were investigated (out of a total of 70 reported). These were classified as shown in the following table.

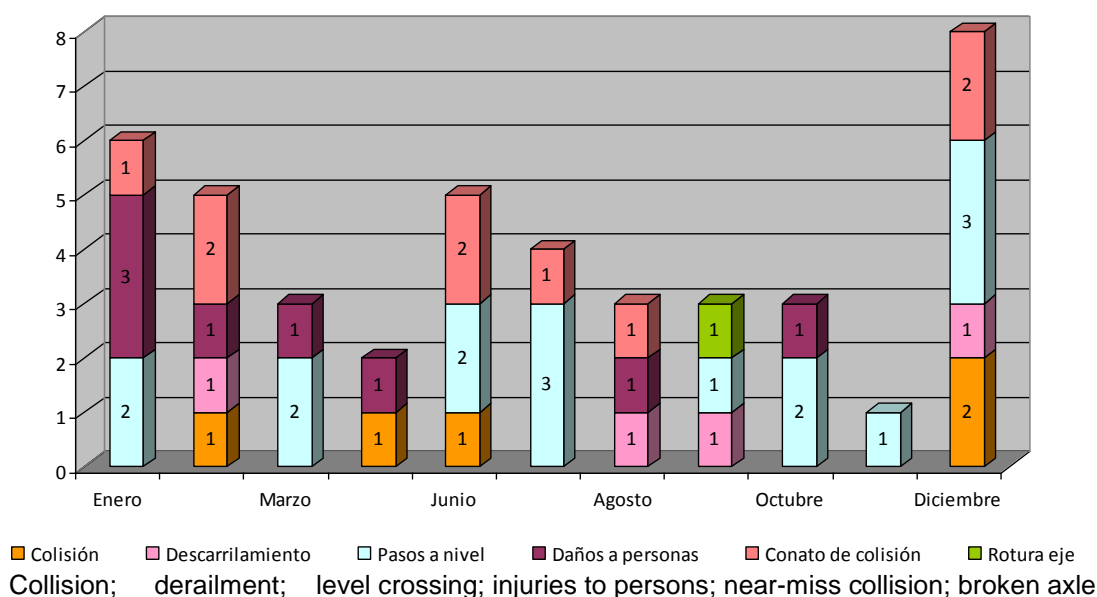
Red	Accidentes				Incidentes		Total
	Colisión	Descarrilamiento	Pasos a nivel *	Daños a personas	Conato de colisión	Rotura de eje	
Adif	4	3	12	8	7	0	34
Feve	1	1	4	0	2	1	9
<b>Total</b>	<b>5</b>	<b>4</b>	<b>16</b>	<b>8</b>	<b>9</b>	<b>1</b>	<b>43</b>

Of the events investigated, the highest percentage (37 %) relates to level crossing accidents, followed by near-miss collisions (21 %)

Monthly distribution of accidents and incidents investigated

Mes	Accidentes				Incidentes		Total
	Colisión	Descarrilamiento	Pasos a nivel	Daños a personas	Conato de colisión	Rotura eje	
Enero			2	3	1		6
Febrero	1	1		1	2		5
Marzo			2	1			3
Abril	1			1			2
Junio	1		2		2		5
Julio			3		1		4
Agosto		1		1	1		3
Septiembre		1	1			1	3
Octubre			2	1			3
Noviembre			1				1
Diciembre	2	1	3		2		8
<b>Total</b>	<b>5</b>	<b>4</b>	<b>16</b>	<b>8</b>	<b>9</b>	<b>1</b>	<b>43</b>

The month with the highest number of incidents was December, and the month with the lowest number was November. The monthly average was 3.6 events, in more than half of which (56 %) the determinant cause was the actions of persons not associated with the railways.

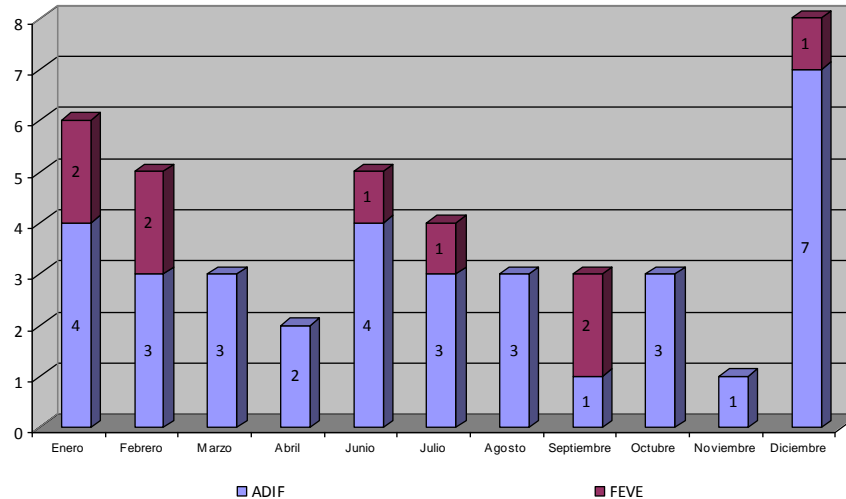


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## 4. INVESTIGATION OF ACCIDENTS AND INCIDENTS

Breaking down the figures by rail networks, of the events reported (56 accidents, 11 incidents and 3 suicides), 43 were investigated, of which 34 were accidents (27) or incidents (7) on the network managed by Adif and 9 were accidents (6) or incidents (3) on the network managed by Feve.

The following graph shows the monthly distribution of the accidents and incidents investigated in 2009, grouped by the infrastructure administrators who manage the rail network.



These accidents and incidents resulted in injuries to 25 persons, with 24 fatalities. The monthly distribution by network and category are shown on the accompanying table.

The average monthly fatality rate for the events investigated was 2.08, with just one injury in 11 months.

ACCIDENTE	ADIF		FEVE		TOTAL
	Víctima mortal	Herido grave	Víctima mortal	Herido grave	
Colisión					0
Des carrilamiento					0
Pasos a nivel	12		4	1	17
Daños a personas	8				8
<b>Total</b>	<b>20</b>	<b>0</b>	<b>4</b>	<b>1</b>	<b>25</b>

[Accidents: Collision; Derailment; Level crossing; Injuries to persons]

The table on the following pages gives details of each of the events investigated, arranged by file number. All investigations initiated in 2009 have been completed.

## 4. INVESTIGATION OF ACCIDENTS AND INCIDENTS

RED	OPERADOR	EXP. N.º	FECHA	MUNICIPIO	PROVINCIA	LINEA	P. K.	VÍCTIMA MORTAL	HERIDO GRAVE	CLASIFICACIÓN SUCESO	TIPO	VEHÍCULO / PEATÓN	LUGAR	ESTADO	RECOMENDACIONES
ADIF	RENFE OPERADORA	0001/09	01/01/2009	Sitges	Barcelona	200 Madrid-Barcelona	643,230	1	0	ACCIDENTE	ARROLLAMIENTO PERSONA	PERSONA	ESTACIÓN	CERRADO	0
ADIF	RENFE OPERADORA	0002/09	14/01/2009	Avilés	Asturias	144 Villabona de Asturias-San Juan de Nieva	16,863	1	0	ACCIDENTE	PASO A NIVEL	PERSONA	ESTACIÓN	CERRADO	0
FEVE	FEVE	0003/09	20/01/2009	La Florida	Asturias	1061 Gijón-Llaviana	15,057	0	0	INCIDENTE	CONATO DE COLISIÓN	TREN	VÍA	CERRADO	1
ADIF	RENFE OPERADORA	0004/09	20/01/2009	Tordera	Barcelona	276 Maçanet-Massanes-Barcelona-Sagrera	64,810	1	0	ACCIDENTE	ARROLLAMIENTO PERSONA	PERSONA	VÍA	CERRADO	1
ADIF	RENFE OPERADORA	0005/09	22/01/2009	Gavá	Barcelona	200 Madrid-Barcelona	663,700	1	0	ACCIDENTE	ARROLLAMIENTO PERSONA	PERSONA	ESTACIÓN	CERRADO	1
FEVE	FEVE	0007/09	30/01/2009	Sodupe	Vizcaya	1024 Santander-Bilbao	631,562	1	0	ACCIDENTE	PASO A NIVEL	PERSONA	ESTACIÓN	CERRADO	0
FEVE	FEVE	0009/09	14/02/2009	Lieres	Asturias	1021 Oviedo-Santander	340,807	0	0	INCIDENTE	CONATO DE COLISIÓN	TREN	ESTACIÓN	CERRADO	3
ADIF	RENFE OPERADORA	0010/09	02/02/2009	Zegama	Guipúzcoa	100 Madrid-Hendaya	551,790	0	0	ACCIDENTE	COLISIÓN	TREN	VÍA	CERRADO	3
ADIF	ADIF-RENFE OPERADORA	0011/09	12/02/2009	Cerdanyola del Vallés	Barcelona	224 Cerdanyola Universitat-Cerdanyola del Vallés	351,200	0	0	INCIDENTE	CONATO DE COLISIÓN	TREN	VÍA	CERRADO	3
ADIF	RENFE OPERADORA	0012/09	22/02/2009	Vigo	Pontevedra	810 Monforte de Lemos-Vigo	175,050	1	0	ACCIDENTE	ARROLLAMIENTO PERSONA	PERSONA	VÍA	CERRADO	1
FEVE	FEVE	0013/09	23/02/2009	Ozanes	Asturias	1021 Oviedo-Santander	378,130	0	0	ACCIDENTE	DESCARRILAMIENTO	TREN	VÍA	CERRADO	1
ADIF	RENFE OPERADORA	0015/09	04/03/2009	Platja de Castelldefels	Barcelona	200 Madrid-Barcelona	656,600	1	0	ACCIDENTE	ARROLLAMIENTO PERSONA	PERSONA	APEADERO	CERRADO	0
ADIF	RENFE OPERADORA	0017/09	24/03/2009	Algemesí	Valencia	300 Madrid-Valencia	81,494	1	0	ACCIDENTE	PASO A NIVEL	PERSONA	ESTACIÓN	CERRADO	0
ADIF	RENFE OPERADORA	0018/09	24/03/2009	Jaén	Jaén	402 Espeluy Aguja Km 340,1-Jaén	137,803	1	0	ACCIDENTE	PASO A NIVEL	VEHÍCULO AUTOMÓVIL	VÍA	CERRADO	1
ADIF	RENFE OPERADORA	0019/09	07/04/2009	Las Navas del Marqués	Ávila	100 Madrid-Hendaya	83,700	1	0	ACCIDENTE	ARROLLAMIENTO PERSONA	PERSONA	ESTACIÓN	CERRADO	0
ADIF	RENFE OPERADORA	0022/09	17/04/2009	El Caleyo	Asturias	130 Venta de Baños-Gijón	134,961	0	0	ACCIDENTE	COLISIÓN	TREN	ESTACIÓN	CERRADO	1
ADIF	RENFE OPERADORA	0025/09	05/06/2009	Maçanet de la Selva	Gerona	270 Portbou-Cerbere-Barcelona-Sant Andreu Comtal	176,126	1	0	ACCIDENTE	PASO A NIVEL	VEHÍCULO AUTOMÓVIL	ESTACIÓN	CERRADO	0
ADIF	RENFE OPERADORA	0027/09	18/06/2009	Madrid (Chamartín)	Madrid	100 Madrid-Hendaya	0,000	0	0	INCIDENTE	CONATO DE COLISIÓN	TREN	ESTACIÓN	CERRADO	1
FEVE	FEVE	0028/09	22/06/2009	Infiesto	Asturias	1021 Oviedo-Santander	361,975	1	0	ACCIDENTE	PASO A NIVEL	PERSONA	ESTACIÓN	CERRADO	0

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## 4.

## INVESTIGATION OF ACCIDENTS AND INCIDENTS

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ADIF	RENFE OPERADORA	0030/09	26/06/2009	Madrid (Aluche)	Madrid	920 Móstoles El Soto-Parla	7,612	0	0	ACCIDENTE	COLISIÓN	TREN	ESTACIÓN	CERRADO	1
ADIF	RENFE OPERADORA	0031/09	06/07/2009	Ronda (Setenil)	Málaga	420 Bobadilla-Algeciras	67,916	1	0	ACCIDENTE	PASO A NIVEL	VEHÍCULO AUTOMÓVIL	VÍA	CERRADO	0
ADIF	RENFE OPERADORA	0032/09	26/06/2009	Humanes	Madrid	500 Madrid-Valencia de Alcántara	22,800	0	0	INCIDENTE	CONATO DE COLISIÓN	TREN	ESTACIÓN	CERRADO	1
FEVE	FEVE	0033/09	08/07/2009	Ribamontán al Monte (Villaverde de Pontones)	Cantabria	1024 Santander-Bilbao	551,254	1	0	ACCIDENTE	PASO A NIVEL	VEHÍCULO AUTOMÓVIL	APEADERO	CERRADO	0
ADIF	RENFE OPERADORA	0036/09	13/07/2009	Jaca (Martillué-Sabiñanigo)	Huesca	204 Bif. Huesca-Canfranc	99,367	0	0	ACCIDENTE	PASO A NIVEL	VEHÍCULO AUTOMÓVIL	VÍA	CERRADO	0
ADIF	RENFE OPERADORA	0038/09	27/07/2009	Bif. Clot	Barcelona	262 Barcelona Sagrera-Bif.Clot	102,700	0	0	INCIDENTE	CONATO DE COLISIÓN	TREN	VÍA	CERRADO	1
ADIF	RENFE OPERADORA	0045/09	24/08/2009	Sant Feliu de Llobregat	Barcelona	240 San Vicente de Calders-L'Hospitalet de Llobregat	89,150	1	0	ACCIDENTE	ARROLLAMIENTO PERSONA	PERSONA	ESTACIÓN (APARTADERO)	CERRADO	1
ADIF	RENFE OPERADORA	0046/09	28/08/2009	El Rebollar	Valencia	310 Aranjuez-Valencia	22,600	0	0	ACCIDENTE	DESCARRILAMIENTO	TREN	ESTACIÓN	CERRADO	1
ADIF	RENFE OPERADORA	0047/09	31/08/2009	Madrid (San Cristóbal Industrial)	Madrid	936 San Cristóbal Industrial-Villaverde Bajo	10,200	0	0	INCIDENTE	CONATO DE COLISIÓN	TREN	ESTACIÓN	CERRADO	1
FEVE	FEVE	0050/09	24/09/2009	Cazoña	Cantabria	1021 Oviedo-Santander	527,485	0	0	INCIDENTE	ROTURA EJE	TREN	APEADERO	CERRADO	3
FEVE	FEVE	0052/09	28/09/2009	Los Nietos Viejos	Murcia	1045 Cartagena-Los Nietos	16,708	1	1	ACCIDENTE	PASO A NIVEL	VEHÍCULO AUTOMÓVIL	VÍA	CERRADO	0
ADIF	RENFE OPERADORA	0054/09	17/09/2009	Zumárraga	Guipúzcoa	100 Madrid-Hendaya	566,856	0	0	ACCIDENTE	DESCARRILAMIENTO	TREN	ESTACIÓN	CERRADO	1
ADIF	RENFE OPERADORA	0055/09	08/10/2009	Monforte de Lemos	Lugo	810 Vigo-Monforte de Lemos	0,851	1	0	ACCIDENTE	PASO A NIVEL	PERSONA	ESTACIÓN	CERRADO	0
ADIF	RENFE OPERADORA	0056/09	16/10/2009	Alfajar (Alfajar-Benetusser)	Valencia	300 Madrid-Valencia	107,996	1	0	ACCIDENTE	PASO A NIVEL	PERSONA	ESTACIÓN	CERRADO	0
ADIF	RENFE OPERADORA	0057/09	23/10/2009	Cornellá de Llobregat	Barcelona	240 San Vicente de Calders-L'Hospitalet de Llobregat	94,316	1	0	ACCIDENTE	ARROLLAMIENTO PERSONA	PERSONA	VÍA	CERRADO	1
ADIF	RENFE OPERADORA	0059/09	16/11/2009	Sama de Langreo	Asturias	140 Bif. Tudela-Veguín a El Entrego	18,055	2	0	ACCIDENTE	PASO A NIVEL	PERSONA	ESTACIÓN	CERRADO	0
ADIF	RENFE OPERADORA	0060/09	01/12/2009	O Porriño	Pontevedra	810 Vigo-Monforte de Lemos	151,433	1	0	ACCIDENTE	PASO A NIVEL	PERSONA	ESTACIÓN	CERRADO	0
ADIF	RENFE OPERADORA	0062/09	13/12/2009	Orbita (Orbita-Espinas)	Ávila	100 Madrid-Hendaya	164,429	1	0	ACCIDENTE	PASO A NIVEL	PERSONA	VÍA	CERRADO	1
ADIF	RENFE OPERADORA	0063/09	11/12/2009	Renedo de Piélagos	Cantabria	160 Santander-Palencia	495,043	0	0	INCIDENTE	CONATO DE COLISIÓN	TREN	ESTACIÓN	CERRADO	1

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## 4. INVESTIGATION OF ACCIDENTS AND INCIDENTS

RED	OPERADOR	EXP. Nº	FECHA	MUNICIPIO	PROVINCIA	LÍNEA	P.K.	VÍCTIMA MORTAL	HERIDO GRAVE	CLASIFICACIÓN SUCESO	TIPO	VEHÍCULO / PEATÓN	LUGAR	ESTADO	RECOMENDACIONES
ADIF	RENFE OPERADORA	0064/09	06/12/2009	Granollers	Barcelona	270 Portbou-Cerbere- Barcelona-Sant Andreu Camtal	136,551	0	0	INCIDENTE	CONATO DE COLISIÓN	TREN	ESTACIÓN	CERRADO	6
FEVE	RENFE OPERADORA	0065/09	15/12/2009	Navia	Asturias	1011 Ferrol-Oviedo	191,222	0	0	ACCIDENTE	COLISIÓN	TREN	VÍA	CERRADO	1
ADIF	RENFE OPERADORA	0066/09	20/12/2009	Sant Guim de Freixenet	Lleida	220 Lleida Pirineus-L'Hospitalet de Llabregat	253,775	1	0	ACCIDENTE	PASO A NIVEL	PERSONA	APEADERO	CERRADO	0
ADIF	RENFE OPERADORA	0068/09	28/12/2009	Pedreira	Sevilla	422 Bif. Utrera-Fuente Piedra	95,000	0	0	ACCIDENTE	DESCARRILAMIENTO	TREN	VÍA	CERRADO	1
ADIF	RENFE OPERADORA	0069/09	30/12/2009	Fuenmayor	La Rioja	700 Casetas-Intermodal Abando Indalecio Prieto	92,020	0	0	ACCIDENTE	COLISIÓN	TREN	ESTACIÓN	CERRADO	1

### 4.3 Analysis by category

#### 4.3.1 Serious accidents

No serious accident was investigated in 2009, given that no serious accident, as defined in Royal Decree 810/2007, occurred on the network.

#### 4.3.2 Accidents

##### 4.3.2.1 Collisions

Five collisions were investigated in 2009: three collisions between trains and two collisions with landslides which cause the partial derailment of the trains involved.

		TIPO	Nº EXPEDIENTE	LÍNEA	PROVINCIA	P.K.
ACCIDENTE	ADIF	COLISIÓN (DE TRENES)	10/09	100 Madrid-Hendaya	Guipúzcoa	551,790
			22/09	130 Gijón Cercanías-Venta de Baños	Asturias	134,961
			30/09	920 Móstoles El Soto-Parla	Madrid	7,612
	FEVE	COLISIÓN (CON OBSTÁCULO)	69/09	700 Casetas-Intermodal Abando Indalecio Prieto	La Rioja	92,020
			65/09	1011 Ferrol-Oviedo	Asturias	191,222

Of these five accidents, all were attributable to the rail system: infrastructure failure (1), human error (2) and landslips in rail cuttings (2). The last two events, which occurred in December, were the result of weather conditions which were particularly adverse in this and the following months (heavy rain and snow), causing slippage of soil and rocks in cuttings at various points on the network.

None of these accidents resulted in deaths or serious injuries.

#### 4.3.2.2 Derailments

Four accidents due to derailment were investigated in 2009, one on the network managed by Feve and three on the Adif network.

		TIPO	Nº EXPEDIENTE	LÍNEA	PROVINCIA	P.K.
ACCIDENTE	ADIF	DESCARRILAMIENTO	54/09	100 Madrid-Hendaya	Guipúzcoa	566,856
			46/09	310 Aranjuez-Valencia	Valencia	22,600
			68/09	422 Bif. Utrera-Fuente Piedra	Sevilla	95,000
	FEVE		13/09	1021 Oviedo-Santander	Asturias	378,130

All were attributable to the rail system: 3 of them (75 %) were caused by failure of railway staff to comply with regulations, and one was due to an infrastructure failure.

#### 4.3.2.3 Level crossing accidents

The Ministerial Order of 2 August 2001, which expands on Article 235 of the Regulations to the Law on the Management of Land Transport [*Ley de Ordenación de Transportes Terrestres*] in relation to the removal and protection of level crossings, defines seven categories of level crossing:

CLASSIFICATION OF LEVEL CROSSINGS (Ministerial Order of 2 August 2001)	
Type	Characteristics
Category A	Protected only by fixed signage
Category B	Protected by light signals and acoustic signals
Category C	Protected with automatic or interlocking half barriers, double half barriers or barriers
Category D	Locally monitored by a railway employee
Category E	Manually controlled by crossing keeper
Category F	Pedestrians or pedestrians and cattle only
Category P	Private

The number of level crossings on the General Interest Rail Network as of 31 December 2009 is shown by category in the following table:

	Adif	%	Feve	%	Total	%
Clase A	1.157	44,28	694	68,24	1.851	50,99
Clase B	476	18,22	67	6,59	543	14,96
Clase C	509	19,48	184	18,09	693	19,09
Clase D	17	0,65	0	0,00	17	0,47
Clase E	2	0,08	4	0,39	6	0,17
Clase F	72	2,76	68	6,69	140	3,86
Clase P	380	14,54	0	0,00	380	10,47
<b>Total</b>	<b>2.613</b>	<b>100</b>	<b>1.017</b>	<b>100</b>	<b>3.630</b>	<b>100</b>



#### 4. INVESTIGATION OF ACCIDENTS AND INCIDENTS

There were 16 level crossing accidents investigated in 2009, 12 on the Adif network and 4 on the Feve network.

		TIPO	TIPO PROTECCIÓN	Nº EXPEDIENTE	LÍNEA	PROVINCIA	P.K.
ACCIDENTE	ADIF	PASOS A NIVEL	A	62/09	100 Madrid-Hendaya	Ávila	164,429
				18/09	402 Espeluy Aguja Km 340,1-Jaén	Jaén	137,803
			B	31/09	420 Bobadilla-Algeciras	Málaga	67,916
			C	59/09	140 Bif. Tudela-Veguín a El Entrego	Asturias	18,055
				02/09	144 Villabona de Asturias-San Juan de Nieva	Asturias	16,863
				66/09	220 Lleida Pirineus-L'Hospitalet de Llobregat	Lleida	253,775
				25/09	270 Portbou-Cerbere-Barcelona-Sant Andreu Comtal	Gerona	176,126
				56/09	300 Madrid-Valencia	Valencia	107,996
				810 Vigo-Monforte de Lemos	55/09	Lugo	0,851
					60/09	Pontevedra	151,433
			F	17/09	300 Madrid-Valencia	Valencia	81,494
			P	36/09	204 Bif. Huesca-Canfranc	Huesca	99,367
	B		52/09	1045 Cartagena-Los Nietos	Murcia	16,708	
	FEVE		C	28/09	1021 Oviedo-Santander	Asturias	361,975
				33/09	1024 Santander-Bilbao	Cantabria	551,254
				07/09		Vizcaya	631,562

None of the accidents which occurred on level crossings was attributable to the rail system, given that they were caused by inappropriate actions by users (pedestrians and vehicles).

These accidents resulted in 16 fatalities and one person seriously injured. Most occurred on crossings with category C protection (68.75 %), and in nine of those the victims were pedestrians (52.94 %).

Tipo protección	Adif		Feve		Total por protección
	Vehículo	Peatón	Vehículo	Peatón	
Clase A	1	1			2
Clase B	1		2		3
Clase C	1	7	1	2	11
Clase F		1			1
<b>Total víctimas</b>	<b>3</b>	<b>9</b>	<b>3</b>	<b>2</b>	<b>17</b>
	<b>12</b>		<b>5</b>		

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In the following table the victims are grouped by age and sex:

Tipo protección	< 25 años		25-50 años		50-70 años		> 70 años	
	Hombre	Mujer	Hombre	Mujer	Hombre	Mujer	Hombre	Mujer
Clase A			2					
Clase B			2	1				
Clase C	2		2	1	1	1	3	1
Clase F							1	
Total	2	0	6	2	1	1	4	1
%	11,76		47,06		11,76		29,42	

The age range with the highest accident level is 25-50 years (47.06 %), followed by the over-70 age group (29.42 %). In the classification by sex, 76.47 % of victims were male.

#### 4.3.2.4 Injuries to persons struck by rolling stock

Eight accidents involving persons struck by rolling stock were investigated in 2009, all of them on the Adif network. Within this category, three occurred on open track, five occurred at stations or halts or in sidings, and two of them on crossings between platforms.

ACCIDENTE	ADIF	TIPO	Nº EXPEDIENTE	LÍNEA	PROVINCIA	P.K.	APEADERO	ESTACIÓN	APARTADERO	VÍA
			01/09			643,230		1		
			15/09	200 Madrid-Barcelona	Barcelona	656,600	1			
			05/09			663,700		1		
			45/09	240 San Vicente de Calders-L'Hospitalet de Llobregat	Barcelona	89,150			1	
			57/09			94,316			1	
			04/09	276 Maçanet-Massanes-Barcelona-Sagrera	Barcelona	64,810			1	
			12/09	810 Monforte de Lemos-Vigo	Pontevedra	175,050			1	

In all cases the accidents was caused by the inappropriate actions of the victims and could not be attributable to the rail system. There were eight fatalities, of which five were male (62.50 %).

	< 25 años		25-50 años		50-70 años		> 70 años	
	Hombre	Mujer	Hombre	Mujer	Hombre	Mujer	Hombre	Mujer
Total	0	2	2	0	2	0	1	1
%	25,00		25,00		25,00		25,00	

This classification excludes persons struck on level crossings (which are included under 'Level crossing accidents') and suicides, none of which were investigated.

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### 4.3.2.5 Fires

No accidents due to fires were investigated in 2009.

### 4.3.2.6 Other accidents

No other kinds of accidents were investigated in 2009.

### 4.3.3 Incidents

10 incidents were investigated in 2009: 9 near-miss collisions and 1 broken axle. Of the ten, 7 occurred on the network managed by Adif and the remainder on the Feve network.

		TIPO	Nº EXPEDIENTE	LÍNEA	PROVINCIA	P.K.
INCIDENTE	ADIF	CONATO DE COLISIÓN	27/09	100 Madrid-Hendaya	Madrid	0,000
			63/09	160 Santander-Palencia	Cantabria	134,961
			11/09	224 Cerdanyola Universitat-Cerdanyola del Vallés	Barcelona	351,200
			38/09	262 Barcelona Sagrera-Bif.Clot	Barcelona	102,700
			64/09	270 Portbou-Cerbere-Barcelona-Sant Andreu Comtal	Barcelona	136,551
			32/09	500 Madrid-Valencia de Alcántara	Madrid	22,800
			47/09	936 San Cristóbal Industrial-Villaverde Bajo	Madrid	10,200
	FEVE	CONATO DE COLISIÓN	09/09	1021 Oviedo-Santander	Asturias	340,807
			03/09	1061 Gijón-Laviana	Asturias	15,320
		ROTURA DE EJE	50/09	1021 Oviedo-Santander	Cantabria	527,485

Of the 11 incidents reported, the CIAF decided to study all of them except one (a train breakdown on open track), on the grounds that the initial conditions which gave rise to the incidents could have resulted in an accident or a serious accident.

All the near-miss collisions were the result of passing a signal at danger (authorised or unauthorised), so logically they must be attributed to the rail system.

## 7. CAUSES OF THE EVENTS INVESTIGATED

The following table summarises the causes of the events, grouped by rail network, category of event and type of event:

CAUSA IMPUTADA	CLASIFICACIÓN	RED	TIPO	CAUSA	TOTAL SUCESOS	TOTAL VÍCTIMAS (MORTALES+HERIDOS)
FERROCARRIL	ACCIDENTE	ADIF	Colisión	FALLO DE INFRAESTRUCTURA: Defecto de vía	1	0
				FALLO DE INFRAESTRUCTURA: Desprendimiento de trinchera	1	0
				FALLO HUMANO: Incumplimiento normativo	2	0
		FEVE	Descarrilamiento	FALLO DE INFRAESTRUCTURA: Defecto de vía	1	0
				FALLO HUMANO: Incumplimiento normativo	2	0
				FALLO HUMANO: Incumplimiento normativo	1	0
	INCIDENTE	ADIF	Colisión	FALLO DE INFRAESTRUCTURA: Desprendimiento de trinchera	1	0
				FALLO HUMANO: Rebase autorizado	2	0
		FEVE	Conato de colisión	FALLO HUMANO: Incumplimiento normativo	5	0
				FALLO HUMANO: Incumplimiento normativo	2	0
			Rotura de eje	FALLO DE MATERIAL RODANTE: Rotura de eje	1	0
<b>TOTAL FERROCARRIL</b>					<b>19</b>	<b>0</b>
TERCEROS	ACCIDENTE	ADIF	Accidente en pasos a nivel	FALLO HUMANO: La víctima no se percata de la llegada del tren	3	2
				FALLO HUMANO: La víctima evita los elementos de protección en funcionamiento	9	10
				FALLO HUMANO: La víctima no se asegura de que el tren ha parado	1	1
		FEVE	Accidente de persona por material rodante	FALLO HUMANO: La víctima hace uso inoportuno del paso entre andenes	2	2
				FALLO HUMANO: La víctima está en un lugar no habilitado	5	5
				FALLO HUMANO: La víctima evita los elementos de protección en funcionamiento	4	5
<b>TOTAL TERCEROS</b>					<b>24</b>	<b>25</b>
<b>TOTAL GENERAL</b>					<b>43</b>	<b>25</b>

Of the total events investigated (accidents and incidents), 56 % (24 of 43) and 100 % of the victims (fatalities or injuries) were the result or inappropriate actions by third parties. The remaining 44 % were attributable to the railway system, 12 % being due to infrastructure failures (track or embankments) or rolling stock defects, and 32 % to human error on the part of rail staff.

## 7. RECOMMENDATIONS

The following tables provide data on the accidents and incidents investigated, victims (fatalities and injuries), and the recommendations issued for each of the events which the Ministry of Development has investigated since 2006 under the terms of the Law and Implementing Regulations on the Rail Sector [*Ley y Reglamento del Sector Ferroviario*] of January 2005 and, subsequently, the Traffic Safety Regulations [*Reglamento de Seguridad en la Circulación*] of September 2007.

### EVENTS INVESTIGATED 2006-2009

	TIPOLOGÍA	2006			2007			2008			2009			TOTAL GENERAL
		ADIF	FEVE	TOTAL	ADIF	FEVE	TOTAL	ADIF	FEVE	TOTAL	ADIF	FEVE	TOTAL	
ACCIDENTE	Colisión	2		2			0	2	1	3	4	1	5	10
	Descarrilamiento	1		1		1	1	2		2	3	1	4	8
	Pasos a nivel	14		14	16	4	20	14		14	12	4	16	64
	Daños a personas	36	1	37	43	3	46	33	2	35	8		8	126
INCIDENTE	Conato de colisión			0			0	2	1	3	7	2	9	12
	Rotura de eje			0			0			0		1	1	1
<b>Total</b>		<b>53</b>	<b>1</b>	<b>54</b>	<b>59</b>	<b>8</b>	<b>67</b>	<b>53</b>	<b>4</b>	<b>57</b>	<b>34</b>	<b>9</b>	<b>43</b>	<b>221</b>

### VICTIMS OF THE EVENTS INVESTIGATED 2006-2009

	TIPOLOGÍA	VÍCTIMAS MORTALES HERIDOS GRAVES	2006			2007			2008			2009			TOTAL GENERAL
			ADIF	FEVE	TOTAL	ADIF	FEVE	TOTAL	ADIF	FEVE	TOTAL	ADIF	FEVE	TOTAL	
ACCIDENTE	Colisión	VM	2		2			0	2		2			0	4
		HG			0			0			0			0	0
	Descarrilamiento	VM	7		7			0			0			0	7
		HG	6		6			0			0			0	6
	Pasos a nivel	VM	16		16	19	4	23	15		15	12	4	16	70
		HG			0	3		3			0		1	1	4
Daños a personas	VM	38	1	39	46	3	49	33	2	35	8		8	131	
	HG	2		2			0	1		1			0	3	
<b>Total</b>		<b>71</b>	<b>1</b>	<b>72</b>	<b>68</b>	<b>7</b>	<b>75</b>	<b>51</b>	<b>2</b>	<b>53</b>	<b>20</b>	<b>5</b>	<b>25</b>	<b>225</b>	

### RECOMMENDATIONS MADE 2006-2009

	TIPOLOGÍA	2006			2007			2008			2009			TOTAL GENERAL
		ADIF	FEVE	TOTAL	ADIF	FEVE	TOTAL	ADIF	FEVE	TOTAL	ADIF	FEVE	TOTAL	
ACCIDENTE	Colisión	2		2			0	1	1	2	6	1	7	11
	Descarrilamiento	4		4		8	8	5		5	4	1	5	22
	Pasos a nivel	14		14	26	12	38	7		7	2		2	61
	Daños a personas			0			0			0	5		5	5
INCIDENTE	Conato de colisión			0			0	8		8	14	4	18	26
	Rotura de eje			0			0			0		3	3	3
<b>Total</b>		<b>20</b>	<b>0</b>	<b>20</b>	<b>26</b>	<b>20</b>	<b>46</b>	<b>21</b>	<b>1</b>	<b>22</b>	<b>31</b>	<b>9</b>	<b>40</b>	<b>128</b>

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### 7.1 Recommendations made in the 2009 accident and incident reports

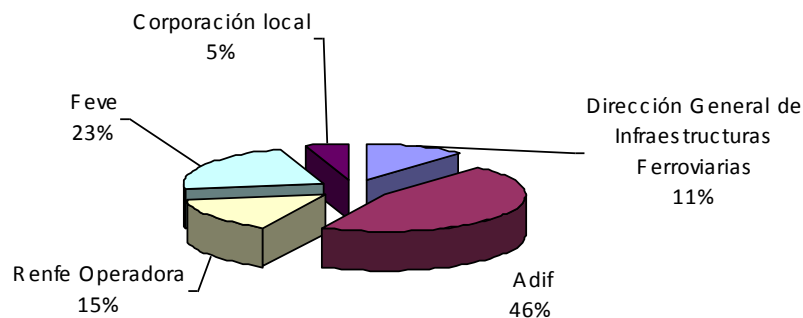
The purpose of rail accident and incident investigation by the CIAF is to contribute to improving the management of rail safety, reducing the risk of accidents and incidents by formulating conclusions and safety recommendations which the Commission publishes in the final report of each investigation.

This final report is sent to the bodies concerned, to the national safety authority (Directorate General of Rail Infrastructures - DGIF), and to the European Railway Agency (ERA).

In 2009 a total of 43 investigations were undertaken and completed in relation to events on the General Interest Rail Network, and in 26 cases the final report included recommendations. The CIAF also published a recommendation in relation to an event which it eventually decided not to investigate (document 08/09. Recipient: Adif). In total the CIAF made 40 recommendations.

The graphic below shows the recommendations addressed to each recipient. Almost half were addressed to Adif - 18 (46 % of the total) followed by Feve - 9 (23 % of the total).

#### ADDRESSEES OF RECOMMENDATIONS



A summary of all investigations carried out and recommendations issued during 2009 appears on the following pages.

## 7. RECOMMENDATIONS

File No.	Date	Line	Administrator	Operator	Type of accident
0001/09	01/01/2009	200 Madrid-Barcelona	Adif	Renfe Operadora	Person struck
<p>A local train struck a traveller at Sitges station who was attempting to board the train before it had completely stopped. The accident was caused by the victim approaching the train before it had completely stopped.</p>					
Number of recommendations			Recipient of recommendations		
0					
01/09-0* No recommendations made					

File No.	Date	Line	Administrator	Operator	Type of accident
0002/09	14/01/2009	144 Villabona de Asturias - San Juan de Nieva	Adif	Renfe Operadora	Level crossing
<p>A local passenger train struck a person who was crossing a Category C level crossing located at KP 16.863 at Avilés station, while the safety arrangements were operational. The accident was caused by the victim using the level crossing, avoiding the lowered barriers, as train 22321 came through..</p>					
Number of recommendations			Recipient of recommendations		
0					
02/09-0* Given the circumstances of the accident, and given that this level crossing is due to be removed, no recommendations are made.					

File No.	Date	Line	Administrator	Operator	Type of accident
0003/09	20/01/2009	1061 Gijón - Laviana	Feve	Feve	Near miss
<p>Local train 5412 leaving La Florida station passed the exit signal which was showing red, resulting in a near miss with a goods train. The accident was caused by the driver of train 5412 passing the exit signal at the station when it was giving a stop indication (red). This was a breach of Feve's Train Movement Regulations and Signalling Regulations.</p>					
Number of recommendations			Recipient of recommendations		
1			Feve		
03-09-1* Review the driver in-service training programmes with a view to placing special emphasis on potentially dangerous attitudes and behaviour.					

## 7. RECOMMENDATIONS

File No.	Date	Line	Administrator	Operator	Type of accident
0004/09	20/01/2009	276 Maçanet-Massanes-Barcelona-Sagrera	Adif	Renfe Operadora	Person struck
<p>After leaving the Tordera halt, local train 25630 was on open track at KP 64.810 when it struck a person attempting to cross the track from left to right as seen from the direction of travel of the train.</p> <p>The accident was caused by the victim entering the clearance envelope of the track as train 25630 was in transit.</p>					
<b>Number of recommendations</b>			<b>Recipient of recommendations</b>		
1			Adif		
<b>04/09-1*</b> Remove all signage relating to the level crossing which has been removed.					

File No.	Date	Line	Administrator	Operator	Type of accident
0005/09	22/01/2009	200 Madrid-Barcelona	Adif	Renfe Operadora	Person struck
<p>When exiting Gavá station medium-haul train 30744 struck a person who was crossing the tracks from left to right as seen from the direction of travel of the train (mountain side to sea side). The victim, who was crossing track I behind a train heading for Gavá station, was struck by train 30744 running on track II.</p> <p>The accident was caused by the victim entering the clearance envelope of the track as train 30744 was in transit.</p>					
<b>Number of recommendations</b>			<b>Recipient of recommendations</b>		
1			Adif		
<b>05/09-1*</b> It is recommended that the trackside fencing in this area be examined to ensure that persons do not cross at unauthorised points.					

File No.	Date	Line	Administrator	Operator	Type of accident
0007/09	30/01/2009	1024 Santander-Bilbao	Feve	Feve	Level crossing
<p>Passenger train 8604 struck a man who was crossing the level crossing located at KP 631.562 at Sodupe station while the barriers were lowered and the acoustic and light signals were operating.</p> <p>The accident was caused by the victim using the crossing, avoiding the lowered barriers, as train 8604 was in transit.</p>					
<b>Number of recommendations</b>			<b>Recipient of recommendations</b>		
0					
<b>07/09-0*</b> Given the circumstances of the accident, no recommendations are made. It should also be noted that there are plans to issue a call for tenders for a study on increasing capacity on the Aranguren-Zaramillo section, which could result in removal of the level crossing.					



## 7. RECOMMENDATIONS

File No.	Date	Line	Administrator	Operator	Type of accident
0008/09	06/02/2009	102 Madrid-Burgos	Adif	Renfe Operadora	Derailment
<p>As long-haul train 11200 was stopping on line IV at Aranda de Duero station, one wheelset of the generator car derailed. There were no fatalities or material damage.</p> <p><b>Although the CIAF did not investigate this event, it made the following recommendation.</b></p>					
Number of recommendations			Recipient of recommendations		
1			Adif		
<p><b>08/09-1*</b> In the light of the ADIF report, and since the accident was clearly the result of faulty installation, it is suggested that it would be advisable for ADIF to inspect the technical installations at Aranda de Duero station and its environs, and that the Railways Directorate should consider whether these installations are adequate for the safe operation of the railways.</p>					

File No.	Date	Line	Administrator	Operator	Type of accident
0009/09	14/02/2009	1021 Oviedo-Santander	Feve	Feve	Near miss
<p>On leaving Lieres station local train 5714 passed the exit signal, which was giving a stop indication, and forced open the points at crossover No 3, resulting in a near collision with local train 5901 which had priority over the points.</p> <p>The accident was caused by a misunderstanding between the driver of train 5714, who passed the exit signal from the station, and the traffic dispatcher at Central Traffic Control (CTC) who, according to the driver's statement, told him to pass the signal. This is shown in his call records but not in the CTC call records, thus providing additional evidence of shortcomings in the system.</p>					
Number of recommendations			Recipient of recommendations		
3			Feve		
<p><b>09/01-1*</b> Check the soundness of the systems of communication between drivers and the CTC, which are designed to ensure good communication between them and to ensure they understand one another perfectly.</p> <p><b>09/01-2*</b> Carry out an audit to assess the degree of compliance with the procedures established for recording communications (written call records).</p> <p><b>09/01-3*</b> Insist on rigorous compliance with the rules relating to operational communications, and on the maintenance of proper driver alertness, particularly when operating in unusual circumstances.</p>					

## 7. RECOMMENDATIONS

File No.	Date	Line	Administrator	Operator	Type of accident
0010/09	02/02/2009	100 Madrid-Hendaya	Adif	Renfe Operadora	Collision
<p>Medium-haul train 16005 and goods train 57656 collided laterally in the Osina tunnel (Guipúzcoa).. One female passenger was slightly injured and there was some damage to the medium-haul train.</p> <p>The lateral collision was due to clearance and cant defects in the track.</p>					
Number of recommendations			Recipient of recommendations		
3			1-2 Adif 3. Railways Directorate		
<p><b>10/09-1*</b> Carry out a maintenance campaign on infrastructures with similar characteristics to the accident site.</p> <p><b>10/09-2*</b> Draw up a plan for periodic maintenance and checking of infrastructures with similar characteristics to the accident site.</p> <p><b>10/09-3*</b> Study the replacement of ballasted track with track set on concrete slabs in these problem areas.</p>					

File No.	Date	Line	Administrator	Operator	Type of accident
0011/09	12/02/2009	224 Cerdanyola Universitat-Cerdanyola del Vallés	Adif	Adif - Renfe Operadora	Near miss
<p>A near miss occurred between Adif track machinery, train MQ577, and goods train 53584 operated by Renfe Operadora. The track machinery improperly passed exit signal S1/4 at Cerdanyola del Vallés station, opening the No 2 points. The trains both came to a halt facing each other at a distance of 400 metres.</p> <p>The incident was caused by train MQ 577 incorrectly passing exit signal S1/4 which was showing red, thus failing to comply with the signal instructions. Underlying causes: None of the personnel travelling on the track machinery were qualified to do so.</p>					
Number of recommendations			Recipient of recommendations		
3			1-2 Adif 3. Railways Directorate		
<p><b>11/09-1*</b> Compliance with Order FOM/2520/2006 which establishes the conditions for obtaining licences and qualifications permitting the exercise of the functions of safety-related railway personnel and the operating regime of the centres for training such personnel and assessing their physical and psychological aptitude.</p> <p><b>11/09-2*</b> Introduction of a procedure for verifying that drivers, and other on-board train crew where applicable, comply with Order FOM/2520/2007, of 27 July.</p> <p><b>11/09-3*</b> Analyse the possibility of changing the rules so that trains not equipped with an Automatic Safety Warning and Braking System (ASFA) or a safety recorder, travelling on a track with unrestricted traffic, must either be towed by tractive units equipped with such systems or their movement must be protected by an occupancy block.</p>					

## 7. RECOMMENDATIONS

File No.	Date	Line	Administrator	Operator	Type of accident
0012/09	22/02/2009	810 Monforte de Lemos - Vigo	Adif	Renfe Operadora	Person struck
<p>Medium-haul train 12703 struck a person who was in the middle of the track. The accident occurred on open track at KP 175.050 between Chapela and Vigo stations.</p> <p>Conclusion: The accident was caused by the victim venturing on to the track as train 12703 was passing.</p>					
Number of recommendations			Recipient of recommendations		
1			Adif		
12/09-1* It is recommended that the desirability of erecting fencing in the vicinity of the accident be studied.					

File No.	Date	Line	Administrator	Operator	Type of accident
0013/09	23/02/2009	1021 Oviedo-Santander	Feve	Feve	Derailment
<p>Passenger train 6500 derailed on a curve on open track at KP 378.130 between Ozanes halt and Soto Dueñas station.</p> <p>The accident was caused by the driver of train 6500 taking the curve in excess of the permitted speed, resulting in the derailment.</p>					
Number of recommendations			Recipient of recommendations		
1			Feve		
13/09-1* Review the driver in-service training programmes with a view to placing special emphasis on potentially dangerous attitudes and behaviour					

File No.	Date	Line	Administrator	Operator	Type of accident
0015/09	04/03/2009	200 Madrid-Barcelona	Adif	Renfe Operadora	Person struck
<p>Passenger train 18098 struck a person crossing the tracks at the Platja de Castelldefels halt without noticing the train was coming. The victim decided to cross the tracks behind a train which was stationary on track I and from which he had alighted (train 28387). The victim was struck and ended up lying on the platform of track II, where he died while being attended to by medical personnel.</p> <p>The accident was caused by the victim entering the clearance envelope of the track while trying to cross behind the train from which he had just alighted and which was standing on track I, without being aware of the arrival of train 18098 on track II.</p>					
Number of recommendations			Recipient of recommendations		
0					
15/09-0* No recommendations are made, given the existence of an overhead walkway between the platforms and notices warning of the dangers of crossing the tracks. An underpass is also under construction near the passenger building.					

## 7. RECOMMENDATIONS

File No.	Date	Line	Administrator	Operator	Type of accident
0017/09	24/03/2009	300 Madrid-Valencia	Adif	Renfe Operadora	Level crossing
<p>Passenger train 24048 struck a person crossing a Category F pedestrian level crossing linking the platforms at Algemesí station, when the light and acoustic signals were indicating that the crossing should not be used .</p> <p>The accident was caused by the victim using the level crossing and ignoring the light and acoustic signals which were indicating that the crossing should not be used.</p>					
Number of recommendations			Recipient of recommendations		
0					
17/09-0* No recommendations were made because on 22 May 2009 a new underpass was opened and the level crossing was closed.					

File No.	Date	Line	Administrator	Operator	Type of accident
0018/09	24/03/2009	402 Espeluy Aguja, Km, 340.1 - Jaen	Adif	Renfe Operadora	Level crossing
<p>Passenger train 18032 struck a vehicle which was crossing a Category A level crossing at KP 137.803 between Villargordo and Grañena. This resulted in the death of the driver, who was the sole occupant of the vehicle.</p> <p>The accident was caused by the vehicle using the crossing as train 18032 was in transit.</p>					
Number of recommendations			Recipient of recommendations		
1			Local authority (Jaen Council)		
18/09-1* It is recommended that the access to the crossing be improved and signals installed as specified in section 2.1.2 of Article 9 of the Order of 2 August 2001 on the removal and protection of level crossings.					

File No.	Date	Line	Administrator	Operator	Type of accident
0019/09	07/04/2009	100 Madrid-Hendaya	Adif	Renfe Operadora	Person struck
<p>Passenger train 407 belonging to Renfe Operadora struck a person crossing between platforms at Navas del Marqués (Ávila) station. The accident was caused by the victim using the crossing between platforms without noticing that train 407 was passing through the station at the time.</p>					
Number of recommendations			Recipient of recommendations		
0					
19/09-0* No recommendations are made.					

## 7. RECOMMENDATIONS

File No.	Date	Line	Administrator	Operator	Type of accident
0022/09	17/04/2009	130 Venta de Baños - Gijón	Adif	Renfe Operadora	Near miss
<p>Local passenger train 22126 stopped at KP 134+961 at El Caleyó station, having improperly passed the home signal 4S, and collided head-on with passenger train 22347. The only consequence of the collision was damage to the front of both trains.</p> <p>The accident was caused by train 22126 passing the home signal, which was giving a stop indication (red), as a result of failure to comply with the instructions given by the signals to the crew.</p>					
Number of recommendations			Recipient of recommendations		
1			Renfe Operadora		
<p><b>22/09-1*</b> Ensure that existing safety management measures are applied. Training procedures should emphasise the need for strict compliance with the rules set out in the General Traffic Regulations, the influence of psychological processes on driver behaviour, and aptitude checks on drivers.</p>					

File No.	Date	Line	Administrator	Operator	Type of accident
0025/09	05/06/2009	270 Portbou-Cerbere-Barcelona-Sant Andreu Comtal	Adif	Renfe Operadora	Level crossing
<p>Goods train 93559 struck a car crossing a Category C level crossing (Maçanet-Massanes station) when the barriers were lowered. The driver, the sole occupant of the vehicle, was killed.</p> <p>The accident was caused by the car improperly crossed the level crossing, avoiding the barriers which were lowered, as train 93559 was passing through.</p>					
Number of recommendations			Recipient of recommendations		
0					
<p><b>25/09-0*</b> No recommendations are made.</p>					

File No.	Date	Line	Administrator	Operator	Type of accident
0027/09	18/06/2009	100 Madrid-Hendaya	Adif	Renfe Operadora	Near miss
<p>At Madrid-Chamartín station local passenger train 27209 improperly passed exit signal S1/10 which was giving a stop indication, resulting in a near collision with passenger train 752.</p> <p>The accident was caused by train 27209 improperly passing exit signal S1/10 which was showing stop (red), as a result of failure to comply with the instructions given by the signals to the crew.</p>					
Number of recommendations			Recipient of recommendations		
1			Renfe Operadora		
<p><b>27/09-1*</b> Ensure that existing safety management measures are applied. Training procedures should emphasise the need for strict compliance with the rules set out in the General Traffic Regulations, the influence of psychological processes on driver behaviour, and aptitude checks on drivers.</p>					

## 7. RECOMMENDATIONS

File No.	Date	Line	Administrator	Operator	Type of accident
0028/09	22/06/2009	1021 Oviedo-Santander	Feve	Feve	Level crossing
<p>Passenger train 5950 struck a person crossing a Category C level crossing at Infiesto station (Asturias) when the barriers were lowered. The accident was caused by the victim entering the track clearance envelope when the train was close to the level crossing, although the barriers were down, the acoustic alarm had sounded correctly and the light signals were activated.</p>					
Number of recommendations			Recipient of recommendations		
0					
28/09-0* No recommendations are made.					

File No.	Date	Line	Administrator	Operator	Type of accident
0030/09	26/06/2009	920 Móstoles El Soto - Parla	Adif	Renfe Operadora	Collision
<p>At Aluche (Madrid) station, which is underground, local passenger train 27319, which was reversing without authorisation, struck local passenger train 27321 which was stationary on track 2. As a result of the collision 61 persons were slightly injured and there was material damage to the infrastructure and to both trains.</p> <p>The accident was caused by train 27319 improperly reversing.</p>					
Number of recommendations			Recipient of recommendations		
1			Renfe Operadora		
30/09-1* Ensure that existing safety management measures are applied. Training procedures should emphasise the need for strict compliance with the rules set out in the General Traffic Regulations, the influence of psychological processes on driver behaviour, and aptitude checks on drivers.					

File No.	Date	Line	Administrator	Operator	Type of accident
0031/09	06/07/2009	420 Bobadilla-Algeciras	Adif	Renfe Operadora	Level crossing
<p>Long-haul passenger train 149 struck a car crossing the Category B level crossing located at KP 67+916 on line 420 Las Maravillas Junction-Algeciras, between Ronda and Setenil stations, when the light and acoustic signals were indicating the arrival of the train. The lady driver, who was the sole occupant of the car, was killed.</p> <p>The accident was caused by the vehicle entering the track clearance envelope, crossing the level crossing when the light and acoustic signals were indicating the arrival of train 149.</p>					
Number of recommendations			Recipient of recommendations		
0					
31/09-0* No recommendations are made.					

## 7. RECOMMENDATIONS

File No.	Date	Line	Administrator	Operator	Type of accident
0032/09	26/06/2009	500 Madrid-Valencia de Alcantara	Adif	Renfe Operadora	Near miss
<p>There was a near collision between local passenger trains HU171 and LU110 at Humanes (Madrid) station. The traffic controller cleared train HU171 to depart without setting the departure routing correctly, then tried to set the home signal to green for train LU110 before train HU171 had departed.</p> <p>The incident was caused by human error on the part of the traffic controller in setting the departure routing for train HU171.</p>					
Number of recommendations			Recipient of recommendations		
1			Adif		
<p><b>32/09-1*</b> The training (both initial training and periodic retraining) of personnel responsible for traffic movements must include traffic management in unfamiliar conditions.</p>					

File No.	Date	Line	Administrator	Operator	Type of accident
0033/09	08/07/2009	1024 Santander-Bilbao	Feve	Feve	Level crossing
<p>Goods train 9687 struck a car which was stopped in the middle of the Category C level crossing at KP 551+254 on line 24 Santander-Bilbao in the vicinity of the Villaverde de Pontones halt. The driver of the vehicle was killed.</p> <p>The collision was caused by the intrusion into the track clearance envelope by the road vehicle, which drove on to the crossing when the barriers were lowered and the light signals activated, and stopped in the middle of the crossing as train 9687 arrived.</p>					
Number of recommendations			Recipient of recommendations		
0					
<p><b>33/09-0*</b> No recommendations are made.</p>					

File No.	Date	Line	Administrator	Operator	Type of accident
0036/09	13/07/2009	204 Huesca Junction -Canfranc	Adif	Renfe Operadora	Level crossing
<p>Medium-haul train 15653 struck an articulated lorry and trailer at the private level crossing located at KP 99+367 on the Jaca to Sabiñánigo section. As a result of the collision the lorry driver and one train passenger were slightly injured.</p> <p>The accident was caused by the improper intrusion into the track clearance envelope by the road vehicle which drove on to the crossing as train 15653 arrived.</p>					
Number of recommendations			Recipient of recommendations		
0					
<p><b>36/09-0*</b> No recommendations are made.</p>					

## 7. RECOMMENDATIONS

File No.	Date	Line	Administrator	Operator	Type of accident
0038/09	27/07/2009	262 Barcelona Sagrera - Clot Junction	Adif	Renfe Operadora	Near miss
<p>Medium-haul train 15052 improperly passed home signal E2 at Clot Junction which was giving a stop indication, resulting in a near miss with train 25552 which was running ahead of it.</p> <p>The incident was caused by train 15052 improperly passing the home signal E2 at Clot Junction, which was giving a stop indication, as a result of failure to comply with the instructions given by the signals to the crew.</p>					
Number of recommendations			Recipient of recommendations		
1			Renfe Operadora		
<p><b>38/09-1*</b> Ensure that existing safety management measures are applied. Training procedures should emphasise the need for strict compliance with the rules set out in the General Traffic Regulations, the influence of psychological processes on driver behaviour, and aptitude checks on drivers.</p>					

File No.	Date	Line	Administrator	Operator	Type of accident
0045/09	24/08/2009	240 San Vicente de Calders-L'Hospitalet de Llobregat	Adif	Renfe Operadora	Person struck
<p>Local passenger train 25163 struck a woman in a wheelchair who was using the timbered crossing between platforms at San Feliu de Llobregat station.</p> <p>The accident was caused by the improper encroachment into the track clearance envelope by the victim, who was using the timbered crossing between platforms when a train was approaching. Although it cannot be confirmed as the cause of the accident, the poor condition of the surface of the crossing may have been a contributory factor. Following the accident the surfacing of the crossing was replaced with vulcanised rubber (STRAIL system).</p>					
Number of recommendations			Recipient of recommendations		
1			Directorate General of Rail Infrastructures		
<p><b>45/09-1*</b> Ensure implementation of the general recommendation contained in the document "CIAF: Study of persons struck on open track, at stations and halts and on level crossings, 2005-2008 [<i>Estudio sobre el arrollamiento de personas en plena vía, estacion o apeadero y paso a nivel 2005-2008</i>] published in November 2009, referring to persons with reduced mobility. It says 'In view of the accidents and injuries which occur at stations and halts and the lack of any general rules on appropriate safety provisions at stations, and given the particular nature of the accidents, it would be opportune for the rail safety authority to examine the possibility of making an inventory of existing stations and halts on the General Interest Rail Network, to include various parameters for the purposes of a risk analysis which would give an idea of the risks present. Based on the results, a plan of the measures to be adopted would be drawn up, prioritising those stations and halts where action needs to be taken and the kind of action required based on the level of risk.'</p>					



## 7. RECOMMENDATIONS

File No.	Date	Line	Administrator	Operator	Type of accident
0046/09	28/08/2009	310 Aranzuez-Valencia	Adif	Renfe Operadora	Derailment
<p>Medium-haul passenger train 18160 derailed at El Rebollar station (Valencia) when the signalman operated point No 2, which was equipped with a Boure interlock, while the train was on the points.</p> <p>The accident was caused by the improper operation of the No 2 points when the last carriage of train 18160 was running over it.</p>					
Number of recommendations			Recipient of recommendations		
1			Adif		
46/09-1* Signalman training should emphasise the specific aspects of setting routes by operating remote points without an interlock pedal.					

File No.	Date	Line	Administrator	Operator	Type of accident
0047/09	31/08/2009	936 San Cristóbal Industrial-Villaverde Bajo	Adif	Renfe Operadora	Near miss
<p>At San Cristobal Industrial station (Madrid) passenger train 20072 improperly passed home signal E2 at the station, which was giving a stop indication, resulting in a near miss with goods train 91038.</p> <p>The incident was caused by train 20072 improperly passing the home signal (E2) which was giving a stop indication, as a result of failure to comply with the instructions given by the signals to the crew.</p>					
Number of recommendations			Recipient of recommendations		
1			Renfe Operadora		
47/09-1* Ensure that existing safety management measures are applied. Training procedures should emphasise the need for strict compliance with the rules set out in the General Traffic Regulations, the influence of psychological processes on driver behaviour, and aptitude checks on drivers.					

File No.	Date	Line	Administrator	Operator	Type of accident
0050/09	24/09/2009	1021 Oviedo-Santander	Feve	Feve	Broken axle
<p>Regular passenger train 6722 suffered a broken axle at KP 527+485 on the Santander-Llanes section, level with the platform of the Cazoña (Cantabria) halt. No persons were injured.</p> <p>The incident was caused by the complete breakage of an axle journal on the last coach of the train. This could have been due to a pre-existing crack, the origin of which was found in two notches which may have resulted from the wheel centring process.</p>					
Number of recommendations			Recipient of recommendations		
3			Feve		
<p>50/09-1* Establish a system for ensuring adequate traceability of operations carried out on axles.</p> <p>50/09-2* An ultrasound inspection which will enable cracks to be located should be included in any of the procedures set out in the maintenance plan for the different types of equipment, wherever this is most practicable. The results should be monitored.</p> <p>50/09-3* Establish quality control instructions for axle centring procedures.</p>					

## 7. RECOMMENDATIONS

File No.	Date	Line	Administrator	Operator	Type of accident
0052/09	28/09/2009	1045 Cartagena-Los Nietos	Feve	Feve	Level crossing
<p>Passenger train 91724 struck a car with two occupants which encroached on the Category B level crossing at KP 16+708 on the Cartagena-Los Nietos (Murcia) line. As a result, the driver of the car was seriously injured and a woman occupying the right front seat was killed.</p> <p>The accident was caused by the vehicle entering the track clearance envelope of the line at the level crossing while the light and acoustic signals were activated, indicating the imminent arrival of the train.</p>					
Number of recommendations			Recipient of recommendations		
0					
52/09-0* No recommendations are made.					

File No.	Date	Line	Administrator	Operator	Type of accident
0054/09	17/09/2009	100 Madrid-Hendaya	Adif	Renfe Operadora	Derailment
<p>Goods train 93614 derailed at KP 566+856, on track 2, situated between the advance and home signals at Zumárraga station on line 100 Madrid Chamartín-Hendaya.</p> <p>The accident was caused by the excessive cant and the variations in cant on the section of track where the derailment occurred.</p>					
Number of recommendations			Recipient of recommendations		
1			Adif		
54/09-1* Strengthen the maintenance plans for those specific areas of infrastructure where there are systematic problems with the track parameters, in order to ensure that the established tolerances are met.					

File No.	Date	Line	Administrator	Operator	Type of accident
0055/09	08/10/2009	810 Vigo-Monforte de Lemos	Adif	Renfe Operadora	Level crossing
<p>Goods train 50284 struck a person who was crossing one of the two pedestrian crossings which constitute the Category C level crossing located at KP 0+851 on line 810 Vigo-Monforte de Lemos, between Canabal and Monforte de Lemos stations, when the half-barriers were lowered and the light and acoustic signals were indicating the arrival of the train.</p> <p>The accident was caused by the action of the victim in using the level crossing when the signals were warning of the arrival of train 50284.</p>					
Number of recommendations			Recipient of recommendations		
0					
55/09-0* No recommendations are made.					

## 7. RECOMMENDATIONS

File No.	Date	Line	Administrator	Operator	Type of accident
0056/09	16/10/2009	300 Madrid-Valencia	Adif	Renfe Operadora	Level crossing
<p>Local passenger train 24228 struck a person crossing one of the two pedestrian crossings which constitute the Category C level crossing located at KP 107+996 on line 300 Madrid (Chamartín)-Valencia (North) at the exit from Alfafar-Benetússer station towards Valencia. The half-barriers were down and the signals were indicating the arrival of the train.</p> <p>The accident was caused by the action of the victim in using the level crossing when train 24228 was in transit, the half-barriers were down and the signals were warning of the arrival of the train.</p>					
Number of recommendations			Recipient of recommendations		
0					
56/09-0* No recommendations are made.					

File No.	Date	Line	Administrator	Operator	Type of accident
0057/09	23/10/2009	240 San Vicente de Calders-L'Hospitalet de Llobregat	Adif	Renfe Operadora	Person struck
<p>Passenger train 25143 struck a person who was walking along the ballast between the ditch and the right-hand rail of track 1 at KP 94+316 near the San Ildefonso halt between L'Hospitalet de Llobregat and Cornellá stations.</p> <p>The accident was caused by the action of the victim in penetrating the track 1 train clearance envelope as passenger train 25143 was passing.</p>					
Number of recommendations			Recipient of recommendations		
1			Adif		
57/09-1* Erect suitable fencing in this area to eliminate dangerous pedestrian access.					

File No.	Date	Line	Administrator	Operator	Type of accident
0059/09	16/11/2009	140 Tudela-Veguín Junction at El Entrego	Adif	Renfe Operadora	Level crossing
<p>Local passenger train 22211 struck two persons who were using the pedestrian crossing of the Category C level crossing at KP 18+055 at the exit from Sama de Langreo station towards Oviedo. The half-barriers were down and the signals were indicating the arrival of the train.</p> <p>The accident was caused by the action of the victims who were crossing the level crossing when train 22211 was in transit, the barriers were lowered and the signals were warning of the arrival of the train.</p>					
Number of recommendations			Recipient of recommendations		
0					
59/09-0* No recommendations are made.					

## 7. RECOMMENDATIONS

File No.	Date	Line	Administrator	Operator	Type of accident
0060/09	01/12/2009	810 Vigo-Monforte de Lemos	Adif	Renfe Operadora	Level crossing
<p>Long-haul passenger train 283 struck a person on the pedestrian crossing of the Category C level crossing at O Porriño (Pontevedra) station at KP 151+433 on line 810 Monforte de Lemos-Vigo, while the half-barriers were down and the signals were indicating the arrival of the train.</p> <p>The accident was caused by the action of the victim in using the crossing when train 283 was in transit, the half-barriers were down and the signals were warning of the arrival of the train.</p>					
Number of recommendations			Recipient of recommendations		
0					
60/09-0* No recommendations are made.					

File No.	Date	Line	Administrator	Operator	Type of accident
0062/09	13/12/2009	100 Madrid-Hendaya	Adif	Renfe Operadora	Level crossing
<p>Medium-haul passenger train 17212 struck a vehicle on the Category A level crossing located at KP 164+429 at the Hendaya end of the platform at the Orbita-Espinosa halt (Ávila). The sole occupant of the vehicle was killed by as a result of the impact and the train running over the vehicle.</p> <p>The accident was caused by the vehicle, occupied by the victim, using the level crossing while train 17212 was in transit.</p>					
Number of recommendations			Recipient of recommendations		
1			Local authority (Orbita Council)		
62/09-1* Ensure the road signalling complies with the Order of 2 August 2001 developing Article 235 of the Implementing Regulations to the Law on the Management of Land Transport [ <i>Ley de Ordenación de Transportes Terrestres</i> ] in relation to the removal and protection of level crossings.					

File No.	Date	Line	Administrator	Operator	Type of accident
0063/09	11/12/2009	160 Santander-Palencia	Adif	Renfe Operadora	Near miss
<p>A locomotive running on its own as train AE 147 improperly passed exit signal S1/1 at Renedo (Cantabria) station, which was giving a stop indication, opening the No 4 points and creating a near collision with local passenger train 26944 which was stopped at home signal E2 (showing red).</p> <p>The incident was caused by a failure to comply with the instructions given by the signals to the crew, resulting in train AE 147 improperly passing exit signal S1/1 which was giving a stop indication.</p>					
Number of recommendations			Recipient of recommendations		
1			Renfe Operadora		
63/09-1* Ensure that existing safety management measures are applied. Training procedures should emphasise the need for strict compliance with the rules set out in the General Traffic Regulations, the influence of psychological processes on driver behaviour, and aptitude checks on drivers.					

## 7. RECOMMENDATIONS

File No.	Date	Line	Administrator	Operator	Type of accident
0064/09	06/12/2009	270 Portbou-Cerbere-Barcelona-Sant Andreu Costal	Adif	Renfe Operadora	Near miss
<p>At the exit from Granollers Centre (Barcelona) station there was a near miss between long-haul train 10371 and medium-haul train 30557 when the former, complying with the train departure signal given by the assistant signalman, left the station, passing through exit signal B1357 while the second train was still in the next sector and had not yet reached Cardedeu station (the next station on the line).</p> <p>The incident was caused by the improper dispatch of train 10371 by the signalling staff at Granollers-Centre station, who failed to comply with the regulations governing the two-track telephone blocking arrangement in place.</p>					
<b>Number of recommendations</b>			<b>Recipient of recommendations</b>		
6			Adif		
<p><b>64/09-1*</b> At stations where there is distributed responsibility for the basic traffic control tasks, a 'C' Notice [<i>Consigna C</i>] shall be created which clearly identifies the tasks of each operative and the relationship between them. (Art. 311.4).</p> <p><b>64/09-2*</b> An analysis should be made of the quality of the initial training and periodic retraining of signalmen, with specific reference to traffic management in unfamiliar circumstances. Based on the results, take any necessary steps to improve this aspect of training.</p> <p><b>64/09-3*</b> The various departments involved in the execution of works will need to draw up a common protocol which will ensure the proper coordination of the activities to be performed and a proper chain of transmission for passing instructions between the person responsible for communicating with the signalman and the work squads.</p> <p><b>64/09-4*</b> Special Notices must specify which installations are being modified and indicate the state of progress of the various phases of the works, with the train crews concerned being notified.</p> <p><b>64/09-5*</b> Persons responsible for the execution of works must increase their efforts to make everyone involved in the works aware of the need to make themselves fully familiar with the content and scope of their assigned tasks. In addition, each team member who is responsible for personnel shall convey the relevant instructions clearly to those personnel and make sure that they are fully understood.</p> <p><b>64/09-6*</b> The Barcelona control centre shall be informed of the need for strict compliance with Presidency Circular No 1 of 1 January 2005, point 5.3 '<i>Notification of the accident or incident</i>', second paragraph: "<i>The Control Centre shall immediately notify the responsible officials of each of the relevant areas of the Rail Structures Administrator</i>" [<i>Administrador de Infraestructuras Ferroviarias</i>]</p>					

## 7. RECOMMENDATIONS

File No.	Date	Line	Administrator	Operator	Type of accident
0065/09	15/12/2009	1011 Ferrol-Oviedo	Feve	Feve	Collision
<p>Regular passenger train 3102 collided with rocks which had fallen from the embankment at KP 191+222 between Navia station and the Piñera Villaoril (Asturias) halt. Two bogies of the diesel unit hauling the train derailed. The driver was slightly injured.</p> <p>The accident was caused by passenger train 3102 colliding with a rockfall from the embankment.</p>					
Number of recommendations			Recipient of recommendations		
1			Feve		
<p><b>65/09-1*</b> Adopt the remedial measures presented and established by the Traffic Safety Committee [<i>Comité de Seguridad en la Circulación</i>] on 30 March 2006, relating to the action to be taken on sections of track running through cuttings in the province of Asturias, this study and actions being extended to other specific points on the network. These measures are:</p> <p><i>Special monitoring of the infrastructure, from trains and on foot, scheduled runs by inspection locomotives and the introduction of temporary speed restrictions in risk situations.</i></p> <p><i>Protective work consisting essentially of the installation of netting, reinforcing mesh, anchorages, screens, rock fill, retaining walls and tunnel extensions.</i></p> <p><i>Examination of the stability of banking in areas considered critical.</i></p> <p><i>Systematic annual investment for this specific problem.</i></p>					

File No.	Date	Line	Administrator	Operator	Type of accident
0066/09	20/12/2009	220 Lleida Pirineus-L'Hospitalet de Llobregat	Adif	Renfe Operadora	Level crossing
<p>Medium-haul passenger train 15624 struck a child on the category C level crossing at KP 253+775 near the Sant Guim de Freixenet halt. The half-barriers were down and the signals were indicating the arrival of the train.</p> <p>The accident was caused by the victim crossing the level crossing as train 15624 was in transit, with the barriers down and the signals warning of the arrival of the train.</p>					
Number of recommendations			Recipient of recommendations		
0					
<p><b>66/09-0*</b> No recommendations are made.</p>					

## 7. RECOMMENDATIONS

File No.	Date	Line	Administrator	Operator	Type of accident
0068/09	28/12/2009	422 Utrera Junction-Fuente Piedra	Adif	Renfe Operadora	Derailment
<p>Medium-haul passenger train 13924 derailed (the entire first coach and the first bogie of the second coach) at KP 94+716 as it was moving on to track 1 at the No 6 points at Pedrera station.</p> <p>The accident was caused by an improper clearance being given to pass the home signal E2 in a normal manner although it was not possible to set that signal to green as this was prevented by the mechanical points position indicator because the points were incorrectly set for the planned routing, and the signalman did not notice this.</p>					
Number of recommendations			Recipient of recommendations		
1			Adif		
<p><b>68/09-1*</b> Provide specific training on the execution of routing with this type of interlock, for new personnel and for those with no experience of these installations.</p>					

File No.	Date	Line	Administrator	Operator	Type of accident
0069/09	30/12/2009	700 Casetas-Intermodal Abando Indalecio Prieto	Adif	Renfe Operadora	Collision
<p>Long-haul passenger train 930 struck a rock which had fallen from the embankment on to the track at KP 92+020 at the entry to Fuenmayor station. As a result of the collision the locomotive and the first four coaches of the train were derailed.</p> <p>The accident was caused by train 930 colliding with a rock which had ended up on the track following a rockfall. The protective metal mesh had not withstood the impact of the rock which measured approximately 1 cubic metre and had fallen from a height of some 25 metres.</p>					
Number of recommendations			Recipient of recommendations		
1			Directorate General of Rail Infrastructures (DGIF) / Adif		
<p><b>69/09-1*</b> DGIF and Adif to consider the viability of increasing the pace of dealing with embankments which present a risk.</p>					

### 7.2 Measures adopted on the basis of the recommendations made

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Article 25 of Royal Decree 810/2007 of 22 June approving the Regulations on the safety of traffic on the General Interest Rail Network specifies that the CIAF annual report, in addition to providing details of investigations carried out in the preceding year and the recommendations which it has published, should also report on measures which have been adopted, where required, on the basis of recommendations made in earlier years.

The events investigated in 2009 and the recommendations made have already been detailed in earlier sections. In this section we indicate the measures which have been taken in relation to earlier recommendations.

The information has been provided by the Directorate General of Rail Infrastructures, as the national rail safety body, and refers to recommendations issued by the CIAF since its creation in 2007.

On the following pages we show the measures which have been adopted up to September 2010 in relation to recommendations made in respect of the various events investigated, identified by their file number.



## 7. RECOMMENDATIONS

File No.	CIAF recommendations	Measures adopted by the final recipient
0065/07	<b>65/07-1*</b> Improve the warning signs, emphasising the need to use the approved crossings for crossing the tracks, on all platforms at stations and halts, without prejudice for the need for passengers to take all necessary precautions when crossing a railway line.	Additional signage installed.

File No.	CIAF recommendations	Measures adopted by the final recipient
0001/08	<b>01/08-1*</b> It is proposed that the possibility of removing the level crossing at this location, which has high traffic levels (8 766 vehicles per day) be examined. The DGF Level Crossing Database (29/02/08) indicated the intention of removing this crossing and it is recommended that this action be expedited.	In the process of removal. The plan is being prepared by Adif.

File No.	CIAF recommendations	Measures adopted by the final recipient
0012/08	<b>12-08-1*</b> It is recommended that Renfe Operadora, after conducting a suitable study as part of mid-term reviews to be selected by Renfe Operadora, should revise its existing maintenance plan for this type of equipment (which already includes checks on the proper operation of doors, hinges and steps) to include checks on wear and slack in the operating mechanisms (pistons, actuator rods, etc.), replacing them as necessary.	The series 444 railcars have been withdrawn

File No.	CIAF recommendations	Measures adopted by the final recipient
0043/08	<b>43/08-1*</b> It is recommended that the competent authority install fixed signs warning of the danger of crossing the tracks and indicating that there is an overpass 200 metres away.	Rustic fences have been installed on both sides.

## 7. RECOMMENDATIONS

File No.	CIAF recommendations	Measures adopted by the final recipient
0044/08	<b>44/08-1*</b> Feve to ensure that historic vehicles running on its network comply with the rules relating to maintenance and approval for use, as set out in the Basic Regulations on the Safety of Rolling Stock [ <i>Norma Básica de Seguridad del Material</i> ]	Feve requires that the owner of any historic vehicle which he proposes to run on the network must obtain a traffic permit, and proper compliance with the maintenance plan must be verified during the authorisation period. When Feve discovered that the plan had not been adhered to, it formally suspended the operation and validity of the collaborative agreement it had signed with the Asociación de Amigos del Ferrocarril de Bilbao [ <i>Bilbao Friends of the Railway Association</i> ]. Control Centres have been instructed to check the permits of vehicles seeking access to the network

File No.	CIAF recommendations	Measures adopted by the final recipient
0046/08	<b>46/08-1*</b> It is recommended that, as a provisional measure, the existing 'No Entry' notice be repainted and a further three notices be installed, one at each edge of the track and at the access points to the viaduct.	Four new 'No entry' signs have been installed, one at each possible entry to the railway bridge.

File No.	CIAF recommendations	Measures adopted by the final recipient
0052/08	<b>52/08-1*</b> Remind the Railways Directorate that it would be desirable to include this level crossing in the Programme for the Removal and Improvement of Level Crossings, when budgets permit.	The DGIF has entrusted this project to Adif and tendering is in progress.

File No.	CIAF recommendations	Measures adopted by the final recipient
0056/08	<b>56/08-1*</b> It is recommended that the boarded crossing be equipped with signage and consideration given to installing a whistle board, pending execution of the project work for which a contract has already been awarded for the Tarragona-Barcelona-France Line - Granollers-Maçanet Section - Underpasses between platforms at the Santa María de Palautordera and Hostalric halts. (Official State Gazette No 181 of 28 July 2008).	An underpass is under construction to provide access between platforms.

## 7. RECOMMENDATIONS

File No.	CIAF recommendations	Measures adopted by the final recipient
0057/08	57/08-1* It is recommended that the competent authority examine the desirability of fencing off the station car park to prevent pedestrian access from the car park to the railway tracks.	This has been included in the Fencing Plan.

File No.	CIAF recommendations	Measures adopted by the final recipient
0064/08	64/08-1* Now that the broken fence has been repaired it is recommended that Adif take the necessary steps to ensure that it is maintained.	The procedure indicated in the recommendation is being followed.

File No.	CIAF recommendations	Measures adopted by the final recipient
0066/08	66/08-1* In view of the accidents occurring in the course of railway works, and the effect of such accidents on rail safety, it is recommended that the Infrastructure Administrators of the General Interest Rail Network establish the necessary procedures - or conduct an analysis of such procedures if they already exist - for the preparation of health and safety studies and plans for railway works and for the authorisation of such works and the monitoring of work in progress, with the aim of ensuring that persons engaged in such work can carry out their activities with minimum risk to persons and to rail traffic.	The procedure indicated in the recommendation is being followed.

File No.	CIAF recommendations	Measures adopted by the final recipient
0010/09	10/09-3* Study the replacement of ballasted track with track set on concrete slabs in these problem areas.	The DGIF is preparing a circular for studying the change from ballasted track to track on concrete slabs for projects with similar characteristics to the accident site.

File No.	CIAF recommendations	Measures adopted by the final recipient
0018/09	18/09-1* It is recommended that the access to the crossing be improved and signals installed as specified in section 2.1.2 of Article 9 of the Order of 2 August 2001 on the removal and protection of level crossings.	The signage has been rectified.

## 7. RECOMMENDATIONS

File No.	CIAF recommendations	Measures adopted by the final recipient
0022/09	<p><b>22/09-1*</b> Ensure that existing safety management measures are applied. Training procedures should emphasise the need for strict compliance with the rules set out in the General Traffic Regulations, the influence of psychological processes on driver behaviour, and aptitude checks on drivers.</p>	<p>Renfe Operadora has introduced a number of projects aimed at improving the management of risk due to human error:</p>
0027/09	<p><b>27/09-1*</b> Ensure that existing safety management measures are applied. Training procedures should emphasise the need for strict compliance with the rules set out in the General Traffic Regulations, the influence of psychological processes on driver behaviour, and aptitude checks on drivers.</p>	<p>1. An office has been set up dedicated to the management of human error. Its role is to identify the causes of human error in drivers and to apply appropriate preventive measures.</p>
0030/09	<p><b>30/09-1*</b> Ensure that existing safety management measures are applied. Training procedures should emphasise the need for strict compliance with the rules set out in the General Traffic Regulations, the influence of psychological processes on driver behaviour, and aptitude checks on drivers.</p>	<p>2. The 'knowledge management community' [<i>comunidad de gestión de conocimiento</i>] commenced activity in May 2010. It comprises training personnel and safety managers, and the aim is to improve the training provided to drivers.</p>
0038/09	<p><b>38/09-1*</b> Ensure that existing safety management measures are applied. Training procedures should emphasise the need for strict compliance with the rules set out in the General Traffic Regulations, the influence of psychological processes on driver behaviour, and aptitude checks on drivers.</p>	<p>3. Training programmes focussed on driver reliability through analysis of the most frequent causes of passing signals and developing the most suitable approaches to preventing human error. These programmes have been developed in cooperation with university researchers with expertise in the field of human error.</p>
0047/09	<p><b>47/09-1*</b> Ensure that existing safety management measures are applied. Training procedures should emphasise the need for strict compliance with the rules set out in the General Traffic Regulations, the influence of psychological processes on driver behaviour, and aptitude checks on drivers.</p>	