Statens haverikommission
Swedish Accident Investigation Authority

Doc. number A-96/13

NIB ANNUAL REPORT 2012

Swedish Accident Investigation Authority

SWEDEN

Statens haverikommission
Swedish Accident Investigation Authority

Contents

1. INTRODUCTION

1.1 Legislation

The Swedish Accident Investigation Authority (SHK) is an independent body. Its activities are regulated, inter alia, by the Accident Investigation Act (1990:712), the Accident Investigations Ordinance (1990:717), and Ordinance (2007:860) providing instructions for SHK.

The Railway Safety Directive (2004/49/EC) has been implemented into Swedish law through these provisions.

1.2 Role and tasks

The Swedish Accident Investigation Authority investigates rail traffic accidents if they were caused by collisions between rail vehicles, derailments, or other safety-critical events that result in at least one fatality or at least five serious injuries or which result in extensive damage to rail vehicles, track systems, property which was not being transported by the rail vehicle, or to the environment, and where the total costs of such damage are estimated at an amount equal to at least two million euro. An incident is to be investigated if:

- it involved a serious risk of an accident,
- it suggests serious faults in rail vehicles or track systems, etc., or it suggests other significant safety deficiencies.

The Swedish Transport Agency no longer investigates rail traffic accidents and the Swedish Accident Investigation Authority cannot delegate the investigation task to the Agency.

A coordinator from each relevant supervisory body usually observes the investigation.

The purpose of SHK's investigations is to:

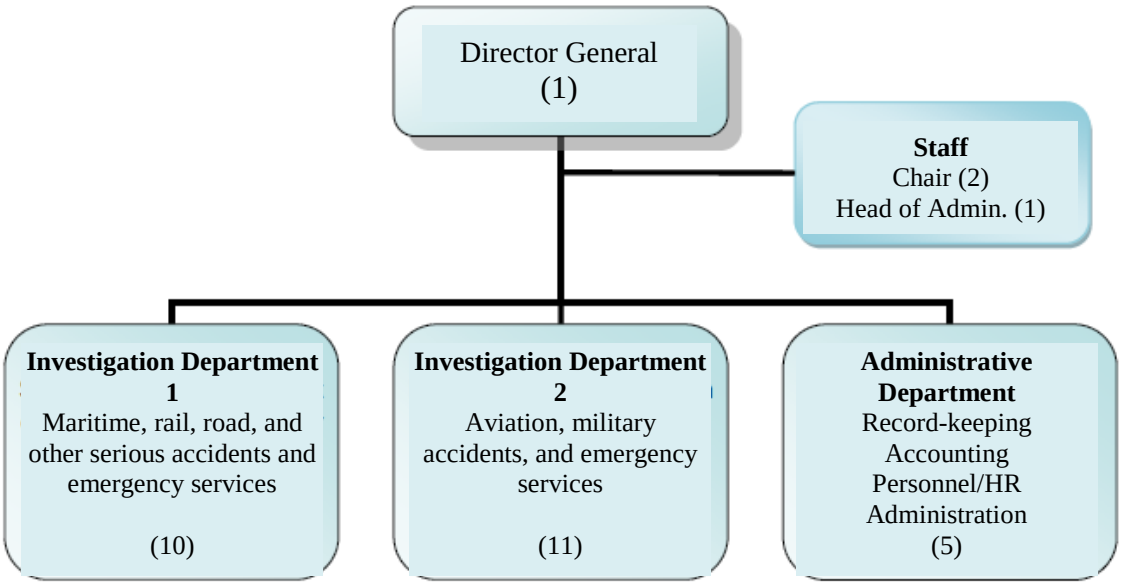
- Insofar as possible, map the sequence of events and cause(s) of the incident as well as damages, injuries, and impacts in general.
- Provide a basis for decisions regarding measures aimed at preventing similar incidents from occurring or at limiting the impacts of such incidents.
- Provide a basis for an assessment of the emergency services' response to the event and, if necessary, for improvements of the emergency services.

At the end of the fact-finding phase, SHK convenes an accident meeting at which all the facts are presented. All those affected by the event are invited to attend this meeting. Representatives of interest groups and trade associations are also usually invited.

If necessary, SHK is required to make recommendations to the respective supervisory body or safety authority on which decisions on suitable measures are to be based.

SHK's role does not include taking a position on matters of liability or damage claims. The investigations are aimed solely at improving safety.

1.3 Organisation



Under current provisions, an SHK investigation must always include at least one Chair and one investigator-in-charge.

Considering the wide range of events that may be subject to an investigation, SHK must occasionally hire external experts who, using their respective expertise, work for SHK by gathering facts and performing analyses. SHK has contracts with experts in various fields for the most commonly occurring investigations. Those appointed as experts, regardless of where they are normally employed, represent only themselves and contribute their expertise in their capacity as experts.

2. INVESTIGATIONS

2.1. Investigations completed in 2012

Type of accident	Number of accidents	Number of victims		Property damage
		Fatalities	Serious injuries	In € (estimate)
Near-collision	1			0
Collision with an obstacle	1	1	9	12 445 000
Accident to person owing to train in motion	1	1	1	
Incident (person)	1			
Dropped load	1			28 300

2.2. Investigations completed and commenced 2008-2012

Basis for investigation:
i = in accordance with the Railway Safety Directive
ii = in accordance with national legislation (areas that may be excluded under Art. 2(2) of the Railway Safety Directive)
iii = voluntary investigations – other criteria (national laws not referred to in the Railway Safety Directive).

Investigations completed in 2008

Event date	Title of investigation	Legal basis	Completed
29/03/2006	Collision between passenger train 8789 and derailed freight wagon of freight train 49302 Linköping-Vikingstad, Östergötland County	i	21/07/2008
19/10/2007	Near-collision between trains 67373 and 3743 between Stenungsund and Ytterby, Västra Götaland County	i	08/10/2008
13/12/2007	Level crossing incident between lorry and passenger train 2513 on Esplanaden in Sundbyberg, Stockholm County.	i	19/12/2008
16/01/2008	Near-collision involving unauthorised movement on the Alby - Ångebyn section, Västernorrland County.	I	18/12/2008

Investigations completed in 2009

Event date	Title of investigation	Legal basis	Completed
07/08/2007	Near-collision between trains 90161 and 52517 at Stockholm Central Station, Stockholm County.	i	17/03/2009
26/09/2006	Accident during shunting in Hallsberg, Örebro County	iii	24/03/2009
11/04/2008	Level crossing incident between lorry with trailer and passenger train 3763 on the Stora Höga - Kode section, Västra Götaland County	i	31/03/2009
09/06/2008	Near-collision between a blocked-line operation for transport and train 3539 at Bryngenäs Station, Västra Götaland County	i	09/06/2009
19/01/2006	Near-collision of train 2510 in Västerhaninge, Stockholm County	i	25/06/2009
17/06/2008	Near-collision between train 7081 and blocked-line operation 76910 at Klockarbäcken passing loop on the Umeå - Brännland section, Västerbotten County.	i	06/10/2009
29/07/2008	Near-collision between blocked-line operation for transport and train 10093 at Torneträsk Station, Norrbotten County.	i	03/12/2009
21/12/2008	Derailment of blocked-line operation 73664 at Kimstad Station, Östergötland County	i	15/12/2009
16/05/2005	Fire in metro train at Rinkeby Station, Stockholm County.	i	22/12/2009
26/07/2007	Derailment of train 412 at Gnesta Station, Södermanland County.		22/12/2009

Investigations completed in 2010

Event date	Title of investigation	Legal basis	Completed
20/07/2007	Fire in tamping machine SPR 3208B on the Bräckefors - Ed section, Västra Götaland County.	i	27/01/2010
24/11/2007	Fire in rail maintenance vehicle DSS 1866B in Grötingen, Jämtland County.	i	31/03/2010
05/08/2007	Near-collision between passenger train 219 and a shunting movement at Stockholm östra, Stockholm County.	i	25/10/2010

04/06/2008	Accident, derailment of train 814 on the Rotebro - Upplands Väsby section, Stockholm County.	i	21/12/2010

Investigations completed in 2011

Event date	Title of investigation	Legal basis	Completed
02/05/2009	Incident involving rolling wagons on the Östavall - Alby section, Västernorrland County.	i	02/02/2011
01/02/2010	Accident, track worker hit at Linghem interlocking area, Östergötland County.	i	22/06/2011
13/03/2010	Near-collision between train 9765 and train 92 at Skutskärs södra, Gävleborgs County.	i	09/03/2011
09/09/2010	Level crossing accident involving train 3750 on the Solgården level crossing, Västra Götaland County.	i	05/09/2011

Investigations completed in 2012

Event date	Title of investigation	Legal basis	Completed
04/06/2010	Impact accident at Karlberg interlocking area, Stockholm County.	i	01/08/2012
12/09/2010	Accident between train 505 and a backhoe loader on rails at Kimstad interlocking area, Östergötland County.	i	10/10/2012
17/11/2010	Impact incident involving personnel working in the track at Skavstaby interlocking area, Stockholm County.	i	25/10/2012
27/01/2011	Accident involving dropped load, train 9132 at Frövi interlocking area, Örebro County.	i	05/11/2012
09/06/2011	Near-collision between two trains at Nyhem interlocking area, Jämtland County.	I	01/06/2012

2.3. Investigations commenced 2011-2010 but not completed

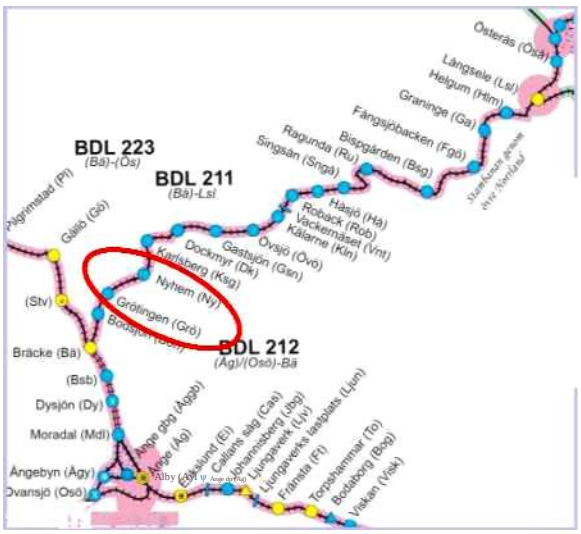
Investigations commenced in 2011

Event date	Title of investigation	Legal basis
09/06/2011	Incident, significant faults and shortcomings, Slussen and Medborgarplatsen, Stockholm County.	i
01/11/2011	Near-collision between Hoting in Jämtland County and Storuman in Västerbotten County.	i
02/11/2011	Derailment incident, Malmö - Helgoland, Skåne County.	i

Investigations commenced in 2012

Event date	Title of investigation	Legal basis
30/01/2012	Near-collision between train 6225 and a shunting operation at Helsingborg freight yard, Skåne County.	i
09/02/2012	Accident involving train 614 and lorry between Hägernäs and Rydbo, Stockholm County.	i
12/06/2012	Incident involving train 8005 and green zone work in the track on Fagersta - Smedjebacken section, Dalarna County.	i

2.4. Summaries of investigations completed in 2012



RJ 2012:01
Near-collision between two trains at Nyhem interlocking area, Jämtland County, 9 June 2011.

On Thursday, 9 June 2011, a near-collision occurred between two freight trains on the Nyhem - Grötingen section.

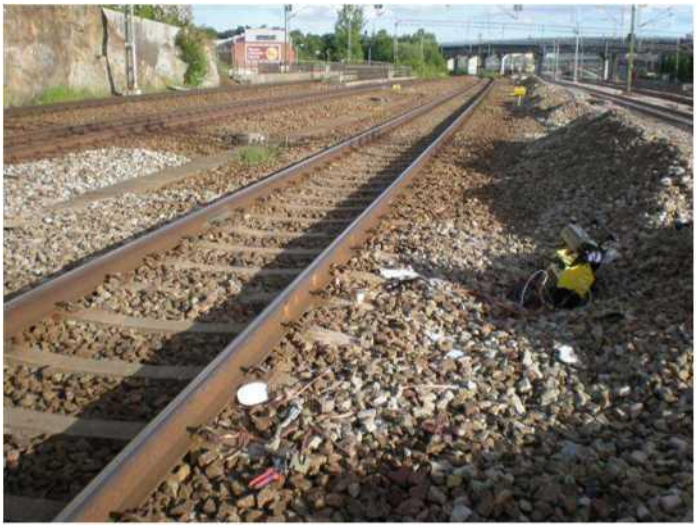
Train 42059 got a ‘proceed’ at intermediate signal Ny 2/5 and exit block signal Ny L1, though the section towards Grötingen was not free of trains. This was because the block system's track circuit dependencies were partly out of operation owing to a switch in the telecommunications cable between Nyhem and Grötingen. Exit block signal Ny L1 did not show ‘stop’ until the approaching train, 4004, tripped the track circuit immediately outside the interlocking area boundary in Nyhem. The driver of train 42059 noticed that a stop lamp had gone to ‘stop’ and then stopped the train within the Nyhem interlocking area.

The direct cause of the incident was that a function was moved from one wire pair to another in a copper cable and the new wire pair was not connected to the functions required for the signal installation to have the fully secure and intended functionality.

An underlying cause of the incorrect switching is that the telecommunications technician lacked knowledge and experience of the Swedish Transport Administration's telecommunications system and its applications, despite the fact that he/she had completed the qualification test with good results.

One reason that traffic was allowed during the malfunction was that a signal safety check was not performed. The check was not performed partly because the signal technician had worked such long shifts with little rest between that fatigue may have affected his ability to make correct decisions.

Another reason is that the division of the contracts between different contractors was new to the signal technician and he did not know the consequences of this or what it entailed for his duties. The two contractors involved lacked any real local information that could have included details of these circumstances. A final reason why traffic was allowed during the malfunction may be ambiguity as to what a fix report from ICT's network operations centre (NOC) means and a failure to realise the need for a fix report on the part of the party responsible for the installation's functionality.



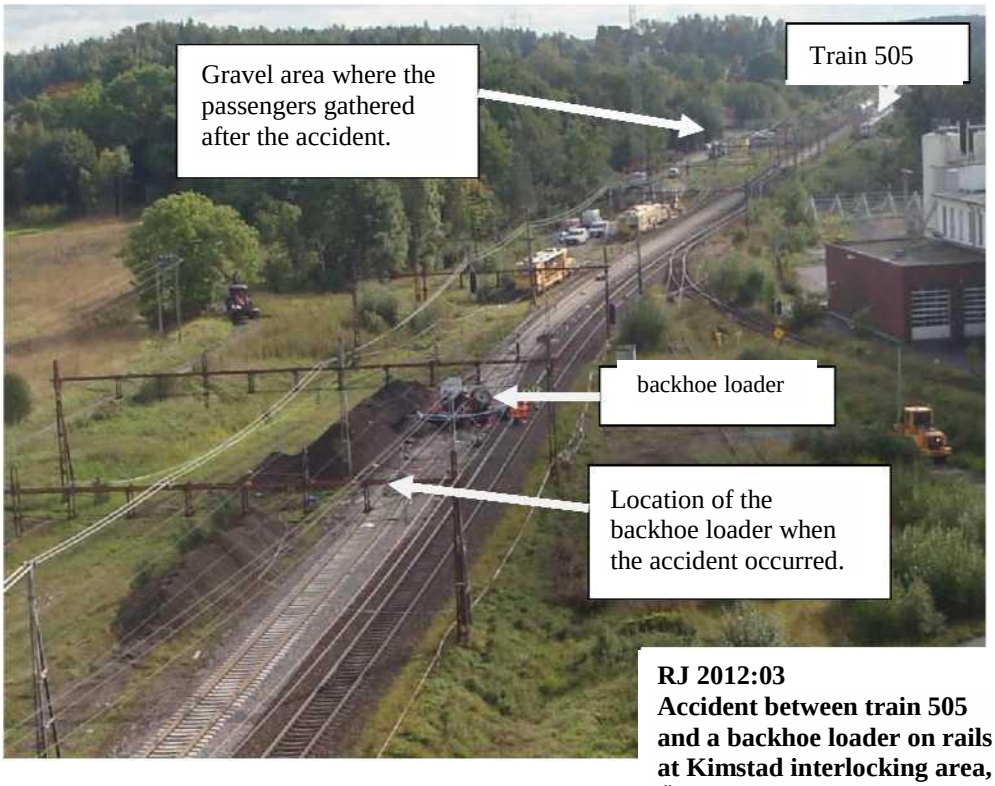
RJ 2012:02
Accident, track worker hit at Karlberg depot area, Stockholm County, 4 June 2010

On 4 June 2010 an accident occurred at Karlberg depot area in which an electrical engineer working in the track was hit and killed by a train.

The electrical engineer was to do a pin braze and had begun preparations to do so when he was hit by a train. The driver of the train noticed the electrical engineer much too late to stop the train or sound a warning signal.

The direct cause of the accident is that work was performed in an active track at a location and under circumstances where such work was not allowed. Underlying causes include a lack of documented planning for the work. Furthermore, the electrical engineer was not wearing high visibility clothing on the upper body, which meant that the driver of the train did not notice him in time to sound a warning of oncoming train.

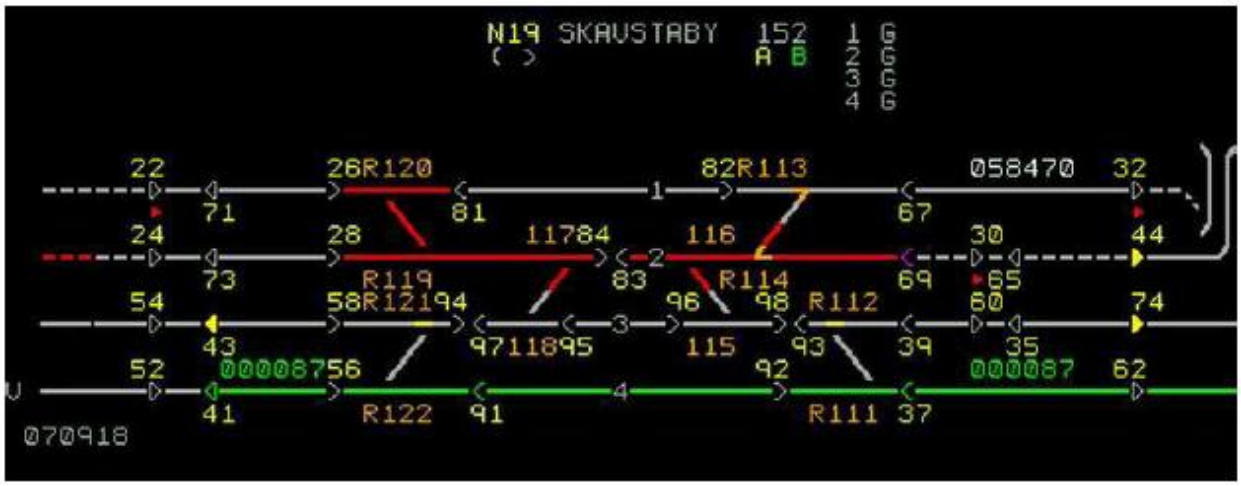
The fundamental causes of the accident were that the Swedish Transport Administration's safety management system had not picked up the shortcomings in the protection and safety planning that was supposed to be carried out in accordance with BVF 923 or that the persons engaged by the Transport Administration had not taken note of local information as required by BVF 1920.



RJ 2012:03
Accident between train 505 and a backhoe loader on rails at Kimstad interlocking area, Östergötland County, 12 September 2010

On Sunday, 12 September 2010, there was a collision at the Kimstad interlocking area between passenger train 505 and a backhoe loader on rails. The accident resulted in one death and twenty injuries, nine of which were serious.

The accident occurred because a backhoe loader was driven onto the track without the establishment of green zone working on adjacent tracks. Underlying reasons for the failure to establish green zone working were shortcomings in the protection and safety planning prior to the work, which in turn was due to shortcomings in the project planning. The project planning shortcomings can in turn be traced back to inadequate project documentation. Shortcomings of the kind that caused the accident, and that exist at many different levels of the Swedish Transport Administration project organisation, should be found and addressed as part of normal audit and deviation management. No such findings have been made, thus the fundamental cause of the accident can be considered to be shortcomings in the Swedish Transport Administration's management of follow-ups, deviations, and risks.



RJ 2012:04
Impact incident involving personnel working in the track at Skavstaby interlocking area, Stockholm County, 17 November 2010

On 17 November 2010, there was an impact incident involving two people who were working in the track at Skavstaby interlocking area. Skavstaby lies between Upplands Väsby and Rosersberg in Stockholm County.

Two track workers, involved in green zone working, were installing snow protection on a point when a passenger train approached on the track in which they were working. The passenger train driver sounded the horn and the two persons jumped out of the track just before the train passed the point on which they had been working.

The direct cause of the train being able to pass the spot where the work was being performed was that the proceed signal could be shown because the track circuit was not shorted. Underlying causes of the incident include Infranord's failure to plan the work in accordance with the procedures in BVF 923 for protection and safety planning. The work was also arranged as directly planned green zone working even though the work was known within Infranord and direct planning of a job may only be used for emergency repairs. The supervisor and head supervisor did not notice in their discussions on coordination and starting permission that they planned the work for different areas.

Neither the Swedish Transport Administration or Infranord management were aware of the practice of not using connectors in green zone working within a D protection area (no trains but various other movements and multiple forms of protection), which reportedly was an accepted mode of operation within Infranord. The Transport Administration's system to detect deviations regarding work in the track environment has not found the contractor to have shortcomings.

The Swedish Transport Administration's safety management system was not able to uncover shortcomings in compliance with the procedures and rules for working in the track environment and nor had it established that the Administration's system for detecting deviations had not picked up these deviations.

The Swedish Transport Agency's oversight activities have been unable to find shortcomings in compliance with the rules and procedures regarding work in the track environment.

RJ 2012:05
Accident involving dropped load, train 9132 at Frövi interlocking area, Örebro County, 27 January 2011

On Thursday, 27 January 2011 at 20:42, an accident occurred in which a steel bar shifted and hit a bridge foundation to a tunnel entrance at the Frövi interlocking area. Frövi lies between Arboga and Lindesberg in Örebro County.

Freight Train 9132 left Oxelösund on 27 January at 16:49 for a transport to Borlänge. The brakes were found to be dragging on one of the wagons when the train arrived in Borlänge. A control check of the train revealed that one of the wagons had lost a steel bar that it was transporting. The steel bar was approximately 9 metres long, 1.4 metres wide, and weighed approximately 23 tonnes. The bar was later found in Frövi where it had struck a bridge foundation to a tunnel entrance and then fallen off the wagon. Prior to passing the bridge, the load had shifted to such an extent that it was partly off the wagon and beyond the line's permitted loading gauge.

The accident occurred because the bars were improperly loaded on a wagon with an unclean floor. Snow and ice between the bars and between the floor and bottommost bar meant that the load was not fully secured. The loading was performed improperly owing to insufficient and outdated loading instructions for the personnel who performed the loading. Said personnel lacked sufficient training in securing loads and how to do so. The personnel who checked the load lacked sufficient knowledge and skill in the loading method and how to check the load.

Despite the loading deficiencies, the train was allowed to leave because prior to the train's departure no adequate check of how the load was secured was carried out. The shortcomings and deficiencies in loading and checks were due to shortcomings in the follow-up of loading activities, check activities, and deviation management. In addition, none of the those involved considered it their responsibility to check that the load was secured before the train movement began. The loading instructions were incomplete and outdated because the follow-up on instructions and the organisation responsible for them have been inadequate. The company's failure to work proactively on risk management was also one of the causes of the accident.

2.5. Accidents and incidents investigated in the last 5 years

Rail traffic investigations 2008-2012

Investigations accidents/incidents		**2008**	**2009**	**2010**	**2011**	**2012**	**Total**
Serious accidents (Art 19, 1 + 2)	Collision			1			**1**
	Collision with an obstacle	1				1	**2**
	Derailment	1					**1**
	Level crossing accident			1		1	**2**
	Accident to person owing to train movement			2		1	**3**
	Fire in rolling stock						**0**
	Involving dangerous goods						**0**
	Fire						**0**
	Incident	6	1	2	5	3	**17**
TOTAL		**8**	**1**	**6**	**5**	**6**	**26**

3. RECOMMENDATIONS 2012

Date and time:	09/06/2011 at 09:48		
Location:	Grötingen- Nyhem, Jämtland County		
Type of event:	Near-collision between two trains		
Vehicle type and train number:	Freight trains 42059 and 4004		
		Present on board	
Number present on board:	***Personnel:***	2	
	Passengers:	0	
Number of fatalities:	***Personnel:***	0	
	Passengers:	0	
Number of serious injuries:	***Personnel:***	0	
	Passengers:	0	
Number of minor injuries:	***Personnel:***	0	
	Passengers:	0	
Damage to rolling stock:	*None*		
Damage to railway infrastructure:	None		
Other damage:	No		
Summary: See section 2.4			
Publication of final report: 01/06/2012			
Recommendation RJ 2012:01 R1	The Swedish Work Environment Authority is recommended to conduct an inspection of whether the Swedish Transport Administration's railway contractors have documented procedures to ensure that the duration and length of working hours are arranged such that the working environment and health and safety are not compromised.		
Recommendation RJ2012:01 R2	The Swedish Transport Agency is recommended to conduct an inspection of the Swedish Transport Administration to examine how the Administration's safety management system ensures that safety-critical work is carried out correctly and by personnel who have the right skills.		

TRANSPORT STYRELSEN

Date
23/11/2012

Doc. No./Ref.
TSJ 2011-960

Your date
1/6/2012

Your Ref.
J-37/11

Swedish Accident Investigation Authority
Statens haverikommission
Box 125 38
102 29 Stockholm

Near-collision between two trains at Nyhem interlocking area, Jämtland County, 9 June 2011

The Swedish Transport Agency has received from the Swedish Accident Investigation Authority Report RJ 2012:01, near-collision at Nyhem interlocking area, 9 June 2011.

The Swedish Transport Agency is recommended to conduct an inspection of the Swedish Transport Administration to examine how the Administration's safety management system ensures that safety-sensitive work is carried out correctly and by personnel who have the right skills (see sections 2.2.2 and 3.2.2) (RJ 2012:01 R2).

Documents BVF 602 and BVF 626, which are referenced in Chapter 2.2.2 of the report, are the bases for the Swedish Transport Administration's safety authorisation. Any amendments made to these documents which affect the safety authorisation are to be sent to the Swedish Transport Agency for review. The Swedish Transport Agency has an annual commission for the administration of the Swedish Transport Administration's safety authorisation, TSJ 2012-44, in which issues regarding document amendments are handled.

The Swedish Transport Agency has conducted inspections of the Swedish Transport Administration regarding how the Administration ensures that safety-sensitive work is carried out correctly (TSJ 2010-1150 and TSJ 2010-1860). In the inspections, the Swedish Transport Administration has stated that a number of steps have been taken. In addition, the Swedish Transport Agency ordered the Swedish Transport Administration, inter alia, to conduct unannounced workplace inspections of engaged contractors. However, it should be emphasised that the Swedish Transport Agency conducts inspections under the Railway Act (2004:519) and the regulations pursuant thereto. Whether a particular official/employee performs safety-related tasks is subject to the criteria in BV-FS 2000:3 and BV-FS 2000:4. For issues regarding the qualifications of an official/employee to be subject to an inspection, he or she must meet the criteria of the aforementioned regulations.

The conclusion drawn from the above inspections was that shortcomings did not lie in the regulatory framework as such, but rather in compliance with these provisions during certain track work. The compliance shortcomings are primarily deemed to consist of the fact that the work was carried out without the proper form of protection and protection and safety planning was incorrectly executed. Through meetings and contacts between the Swedish Transport Agency and the Swedish Transport Administration it came to light that the latter, through its own investigations, had also reached the same conclusions and even taken action on them.

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TRANSPORT STYRELSEN

Date
23/11/2012

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TSJ 2011-960

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The issue is also discussed at the annual corporate meetings that the Swedish Transport Agency holds with the Swedish Transport Administration.

In addition to the above and based on a project from a joint Director General meeting in May 2011, pilot studies were carried out at both the Swedish Transport Administration and the Swedish Transport Agency regarding competency requirements for safety in operations and maintenance and new construction of roads and railways. Representatives from the Transport Administration's and Transport Agency's respective studies had coordination meetings throughout the entire process. One of the conclusions of the Swedish Transport Agency's final report is that shortcomings in safety awareness and the attitude toward the risks of the work appear to be more common causes of accidents than a direct lack of knowledge.

In addition to the SHK analysis and recommendations, the Swedish Transport Agency is concerned about the conditions that were allowed to prevail in the contract take-over. Time was too short to hire competent personnel and procure material. The personnel experienced unclear boundaries between different contracts, such as who should check completed work. In 2013, the Swedish Transport Agency intends to implement oversight of drafting agreements for contracts and contract take-overs.

Best Regards,

[signature]

Birgitta Hermansson

Road and Railway Director, Swedish Transport Agency

THE SWEDISH WORK ENVIRONMENT AUTHORITY

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[STAMP] (Reads: Swedish Accident Investigation Authority. Received 01/10/2012.Doc. No.J-37/11. File Annex No. 109.)

Final report RJ 2012:01 on near-collision between two trains at Nyhem interlocking area, Jämtland County, 9 June 2011.

The final report recommends the Swedish Work Environment Authority *to conduct an inspection of whether the Swedish Transport Administration's railway contractors have documented procedures to ensure that the duration and length of working hours are arranged such that the working environment and health and safety are not compromised.*

The Authority's comment on this is that under health and safety legislation, the employer has a clear responsibility to take all necessary steps to prevent the employee from being exposed to ill-health or accident. The Swedish Work Environment Authority conducts oversight under the Swedish Work Environment Act and the Authority's own regulations. This does not mean that the Authority assumes work environment responsibilities.

The Authority's prioritisation of the sites/workplaces to be visited is risk-based. The recommendation provided by SHK in RJ 2012:01 will be an important input in planning the Authority's inspection efforts.

Bernt Nilsson

Carl Axel Sundström
[signature]

[signature]

Cc: Ministry of Employment, ARM
IM, IN, IS

Date and time:	04/06/2010 at 15:27		
Location:	Karlberg interlocking area, Stockholm County		
Type of event:	Accident, track worker hit at Karlberg depot area		
Vehicle type and train number:	Passenger train 2742.		
		Present on board	
Number present on board:	***Personnel:***	0	
	Passengers:	0	
Number of fatalities:	***Personnel:***	1	Track worker
	Passengers:	0	
Number of serious injuries:	***Personnel:***	1	Track worker
	Passengers:	0	
Number of minor injuries:	***Personnel:***	0	
	Passengers:	0	
Damage to rolling stock:	*None*		
Damage to railway infrastructure:	None		
Other damage:	No		
Summary: See section 2.4			
Publication of final report:	01/08/2012		

Recommendation RJ 2007:02 R1	Since the Swedish Work Environment Authority has not responded to the recommendations of investigation report RJ 2011:03, SHK elects to once again make the same recommendations to them, i.e. it is recommended that the Swedish Work Environment Authority:
(RJ 2011:03 R5)	• together with the Transport Agency, take the measures necessary to ensure that track work is done with adequate safety standards, *(RJ 2011:03 R5).*
(RJ 2011:03 R6)	• through its oversight verify that the companies' systematic health and safety efforts pick up operational deviations *(RJ 2011:03 R6).*
	Given the measures taken by the Swedish Transport Agency's, SHK makes no recommendations to them.

THE SWEDISH WORK ENVIRONMENT AUTHORITY

Your date 01/08/2012 Your Ref. Doc. No. J-37/10

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Statens Haverikommission
Swedish Accident Investigation Authority
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[STAMP] (Reads: Swedish Accident Investigation Authority. Received 26/10/2012.Doc. No.J-32/10. File Annex No. 90.)

Final report RJ 2012:02 on accident involving track worker hit by train at Karlberg interlocking area, 4 June 2010.

On 4 June 2010 an accident occurred in which an electrical engineer working in the track was hit and killed by a train. The direct cause of the accident is that work was performed in an active track at a location and under circumstances where such work was not allowed.

The final report recommends that the Swedish Work Environment Authority

- *together with the Transport Agency, take the measures necessary to ensure that track work is done with adequate safety standards, (RJ 2011:03 R5).*
- *through its oversight verify that the companies' systematic health and safety efforts pick up operational deviations (see sections 2.3.2, 3.2.2) (RJ 2011:03 R6).*

According to the report, the Swedish Transport Agency has already taken several steps to ensure that the track work is done with adequate safety standards. Among other things, the Swedish Transport Administration has issued a new version of '*Regler för arbetsmiljö och säkerhet vid aktiviteter i spårområde*' [Rules for health and safety and working environment during activities in track areas].

Included in the Swedish Work Environment Authority's regular oversight are the tasks of reviewing companies' systematic health and safety efforts and ensuring that track work is performed with adequate safety standards. The oversight also examines whether companies have systems to pick up deviations in their operations as well as their reporting of incidents and accidents.

The Swedish Work Environment Authority and the Swedish Transport Agency's railway unit have regular meetings at which the efforts of both bodies to increase safety in the railway sector are discussed. Possible joint oversight efforts are also discussed. In several cases, matters have been driven by health and safety legislation that also positively affects railway safety.

The Swedish Work Environment Authority takes part in '*Gruppen för Nationell Samverkan Järnväg (GNS Järnväg)*' [Group for national cooperation, Railways]. GNS was formed in early 2012 and brings together influential stakeholders in railway safety. Work in the track was identified as one of the areas on which it is important to focus in order to reduce fatalities and serious accidents on the railways. The approach within GNS Rail is based on experiences from GNS efforts in the road traffic field. Constant improvement, management by objectives, and

collaboration are some of the guiding principles. In addition to work in the track, GNS Rail deals with other important aspects such as persons illegally crossing tracks, suicides, and level crossings.

The Swedish Work Environment Authority has completed an inspection of the Norwegian company involved in the accident at Karlberg. In an inspection notice, the Authority set down requirements regarding procedures for accident investigations and protection and safety planning for work in a track area. The company has responded and the Authority's Stockholm district has deemed the responses to be satisfactory. The Authority has also reported to the Swedish Prosecution Authority in Stockholm suspected violations of Chapter 2, Sections 1-2 and Chapter 3, Sections 2-2a of the Work Environment Act; and Articles 2, 3, 8, and 10 of Swedish Work Environment Authority Regulations AFS 2001:1 on systematic health and safety efforts. The Authority has no information on how and when the case will be taken up.

In conclusion, the Swedish Work Environment Authority acts in several ways to improve track work safety. However, under health and safety legislation, the employer has a clear responsibility to take all necessary steps to prevent the employee from being exposed to ill-health or accident. The Swedish Work Environment Authority conducts oversight under the Swedish Work Environment Act and the Authority's own regulations. This does not mean that the Authority assumes work environment responsibilities. The recommendations provided by SHK in RJ 2012:02 *(RJ 2011:03 R5 and RJ 2011:03 R6)* have been dealt with. The Authority's prioritisation of the sites/workplaces to be inspected is risk-based. SHK's recommendations provide added weight for the planning of inspections in relation to work in the track environment.

Bernt Nilsson
[signature]

Carl Axel Sundström
[signature]

Cc: Ministry of Employment, ARM
IM, IN, IS

Date and time:	12/09/2010 at 19:39		
Location:	Kimstad interlocking area, Östergötland County		
Type of event:	Accident between train 505 and a backhoe loader on rails		
Vehicle type and train number:	A backhoe loader on rails and passenger train 505 type X2.		
		Present on board	
Number present on board:	***Personnel:***	4	
	Passengers:	240	
Number of fatalities:	***Personnel:***	0	
	Passengers:	1	
Number of serious injuries:	***Personnel:***	1	
	Passengers:	8	
Number of minor injuries:	***Personnel:***	1	
	Passengers:	10	
Damage to rolling stock:	Damages to all vehicles in the trainset.		
Damage to railway infrastructure:	Minor damages to the track and point		
Other damage:	A backhoe loader on rails was irreparably damaged.		
Summary: See section 2.4			
Publication of final report: 10/10/2012			
Recommendation RJ 2012:03 R1	The Swedish Transport Agency is recommended to review the Swedish Transport Administration's management of audits, deviations, and risks with a view to ensuring a level of quality such that shortcomings in project management and planning are detected and addressed		

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Date
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Your date
10/10/2012

Your Ref.
J-48/10

Statens Haverikommission
Swedish Accident Investigation Authority
Box 125 38
102 29 Stockholm

Accident between train 505 and a backhoe loader on rails at Kimstad interlocking area, Östergötland County, 12 September 2010.

The Swedish Transport Agency has received from the Swedish Accident Investigation Authority Report RJ 2012:03, accident between train 505 and a backhoe loader on rails at Kimstad interlocking area, 12 September 2010.

The Swedish Transport Agency was recommended to review the Swedish Transport Administration's management of audits, deviations, and risks with a view to ensuring a level of quality such that shortcomings in project management and planning are detected and addressed (see sections 2.2.3 and 3.2.2) (RJ 2012:03 R1).

The Swedish Transport Administration's management processes for audits, deviations, and risks were reviewed in the authorisation process that was conducted prior to the granting of a safety authorisation to the Swedish Transport Administration as infrastructure manager upon its formation on 1 April 2010. The processes were reviewed by studying the submitted documentation. The review did not find any deviations in the documentation/processes.

However, the Swedish Transport Agency has since seen indications that there are shortcomings in compliance with the Swedish Transport Administration's governing documents regarding the above processes and has therefore decided to conduct an audit/inspection in 2013 of the Swedish Transport Administration's deviation management. The Transport Agency believes this oversight to also be a response to SHK's recommendation.

The Swedish Transport Agency launched in December 2011 a '*brevtillsyn*' [an inspection of all relevant paperwork] of the Transport Administration and requested, inter alia, access to the Administration's governing procedures for operations in order to detect trends in safety-related traffic events in general, as well as the Administration's governing procedures for the communication of measures decided upon and for following-up whether these decisions have been addressed and executed. The decision to end the oversight was made in April 2012 after documents submitted by the Swedish Transport Administration stated that they were reviewing and changing transport safety deviation management. The changes are scheduled for completion and approval by 1 March 2013 at the latest.

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In addition, the Swedish Transport Agency has noted that the Swedish Accident Investigation Authority intends to conduct a thematic investigation of safety shortcomings in track environment work J-67/12.

Best Regards,

[signature]

Birgitta Hermansson

Road and Railway Director, Swedish Transport Agency

Date and time:	17/11/2010 at 03:23		
Location:	Skavstaby interlocking area, Stockholm County		
Type of event:	Impact incident involving personnel working in the track		
Vehicle type and train number:	Passenger train 87		
		Present on board	
Number present on board:	***Personnel:***	0	
	Passengers:	0	
Number of fatalities:	***Personnel:***	0	
	Passengers:	0	
Number of serious injuries:	***Personnel:***	0	
	Passengers:	0	
Number of minor injuries:	***Personnel:***	0	
	Passengers:	0	
Damage to rolling stock:	*None*		
Damage to railway infrastructure:	None		
Other damage:	Obstacle warning signs and cable winder hit.		
Summary: See section 2.4			
Publication of final report: 25/10/2012			
Recommendation RJ 2012:04 R1	The Swedish Transport Agency is recommended to analyse and evaluate the oversight practices applied in order to improve capacity to uncover the types of deviations that the Agency has not been able to pick up in its oversight of safety management systems, for example, an infrastructure manager that does not follow the requirements for work in the track environment, BV-FS 2000:3 regarding competency requirements for persons working in safety services, and BV-FS 2000:4 regarding medical examinations conducted before returning to work.		

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Date
04/02/2013

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Your date
25/10/2012

Your Ref.
J-66/10

Statens Haverikommission
Swedish Accident Investigation Authority
Box 125 38
102 29 Stockholm

Reply to SHK recommendation regarding impact incident with personnel working in the track at Skavstaby interlocking area, Stockholm County, 17 November 2010.

The Swedish Transport Agency has taken note of the Swedish Accident Investigation Authority's Report RJ 2012:04 regarding impact incident with personnel working in the track at Skavstaby interlocking area, Stockholm County, 17 November 2010. SHK gave the following recommendation:

- ***The Swedish Transport Agency is recommended to analyse and evaluate the oversight practices applied in order to improve capacity to uncover the types of deviations that the Agency has not been able to pick up in its oversight of safety management systems (see section 2.3.1), for example, an infrastructure manager that does not follow the requirements for work in the track environment (see section 3.2.2), BV-FS 2000:3 regarding competency requirements for persons working in safety services (see sections 2.2.2 and 3.2.2), and BV-FS 2000:4 regarding medical examinations conducted before returning to work (see section 2.6.2) (RJ2012:04 R1).***

<u>The Swedish Transport Agency's reply to the SHK recommendation:</u>

The Swedish Transport Agency works continuously to analyse and evaluate its oversight practices within the framework of its own oversight process.

In May 2012, the Transport Agency concluded a pilot study of competency requirements for safety in operations and maintenance and new construction of roads and railways. On 16 May 2012, the Agency made a decision to proceed with a number of proposed measures, one of which was to examine whether the conditions in the following two regulations are applied in full: Commission Regulation (EU) No 1158/2010 of 9 December 2010 on a common safety method for assessing conformity with the requirements for obtaining railway safety certificates and Commission Regulation (EU) No 1169/2010 of 10 December 2010 on a common safety method for assessing conformity with the requirements for obtaining a railway safety authorisation. The work will continue through 2013, and possibly longer. The above pilot study and measures form part of this work and will entail additional Swedish

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Transport Agency analyses and evaluations of its practices regarding both oversight and licensing.

In addition, the Swedish Transport Agency's Road and Rail Department resolved (TSG 2012-1289) on 19 December 2012 to establish a process for all oversight of infrastructure managers and railway undertakings. The following process-related items were established in the resolution:

- **Process diagram (overview)**
- **Purpose**
- **Scope**
- **Roles**
- **Efforts**
- **Oversight results, including:**
  - **Need for amended rules**
  - **Amendments to business plan**
  - **Procedure modifications**
- **Stakeholders/stakeholder requirements**
- **Adjacent processes**
- **Governing and supporting documents**
- **Goals and evaluation**
- **IT system/applications**

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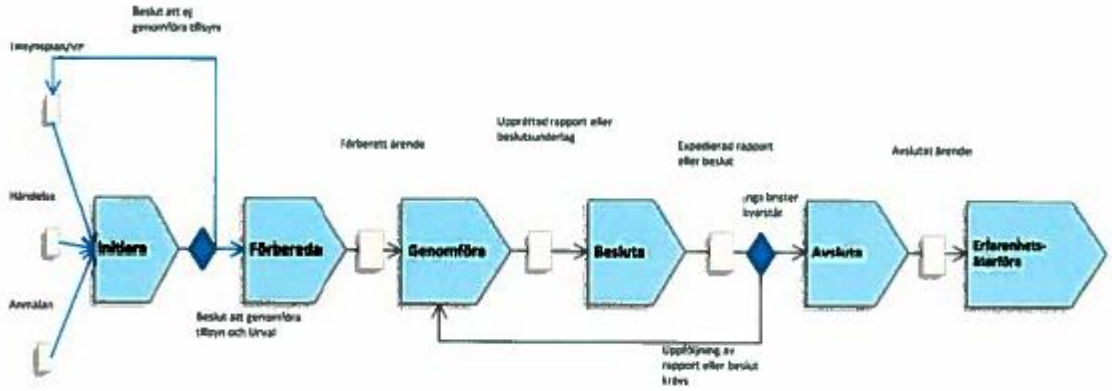
Process diagram:



Tillsynsplan/VP	**Inspection plan/VP**	**Genomföra**	**Execute**
Handelse	**Event**	**Upprättad rapport eller beslutsunderlag**	**Prepared report or basis for decision**
Anmälan	**Notification**	**Besluta**	**Decide**
Initiera	**Initiate**	**Expederad rapport eller beslut**	**Expedited report or decision**
Beslut att ej genomföra tillsyn	**Decision to not conduct inspection**	**Uppföljning av rapport eller beslut krävs**	**Follow-up of report or decision required**
Beslut att genomföra tillsyn och Urval	**Decision to conduct inspection and selection**	**Inga brister kvarstår**	**No remaining shortcomings**
Förbereda	**Prepare**	**Avsluta**	**Close**
Förberett ärende	**Prepared case**	**Avslutat ärende**	**Case closed**
		Erfarenhets-återförs	**Experience feedback**

The process has been adopted in its entirety and further efforts are underway to fill each box with activities, owners, responsibility, and so on.

The Swedish Transport Agency considers the above to be in compliance with the SHK recommendation.

Best Regards,

[signature]

Birgitta Hermansson

Road and Rail Director, Swedish Transport Agency

Date and time:	27/01/2010 at 20:42		
Location:	Frövi interlocking area, Örebro County		
Type of event:	Accident involving dropped load		
Vehicle type and train number:	Freight train 9132		
		Present on board	
Number present on board:	***Personnel:***	0	
	Passengers:	0	
Number of fatalities:	***Personnel:***	0	
	Passengers:	0	
Number of serious injuries:	***Personnel:***	0	
	Passengers:	0	
Number of minor injuries:	***Personnel:***	0	
	Passengers:	0	
Damage to rolling stock:	Damage to wagons from the steel bar and damage caused by stones dislodged from the bridge. Damage to the brake system and wheels.		
Damage to railway infrastructure:	Load-bearing parts of bridge foundation damaged.		
Other damage:			
Summary: See section 2.4			
Publication of final report: 05/11/2012			
Recommendation RJ 2012:05 R1	In conjunction with application examination and oversight, focus on the roles and responsibilities of different players/contracting parties to meet the requirement to ensure safe operation under the Railway Act		
RJ 2012:05 R2	In conjunction with application examination and oversight of railway undertakings, put particular emphasis on the undertaking's procedures as regards risk management and operation follow-up as well as with regard to organisation and administration of rules and procedures.		
RJ 2012:05 R3	When reviewing a permit and in audits, go through old, completed inspections and any remaining items to ensure that the deficiencies found have been addressed.		
RJ 2012:05 R4	Consider initiating efforts in the area of responsibility for railway load securing such as in the case of the focus area identified for road transport in the Swedish Transport Agency’s project on securing loads.		

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01/11/2012

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Swedish Accident Investigation Authority
Statens Haverikommission
Box 125 38
102 29 Stockholm

Accident involving dropped load, train 9132 at Frövi interlocking area, Örebro County, 27 January 2011.

The Swedish Transport Agency has taken note of the Swedish Accident Investigation Authority's Report RJ 2012:05 regarding the accident involving a dropped load, train 9132 at Frövi interlocking area, Örebro County, 27 January 2011. SHK gave four recommendations listed below as bullet points and followed by the Swedish Transport Agency's reply.

- In conjunction with application examination and oversight, focus on the roles and responsibilities of different players/contracting parties to meet the requirement to ensure a safe operation under the Railway Act (see sections 2.2.4, 3.2.2, and 4.3) *(RJ 2012:05 R1).*

Reply RJ 2012:05 R1
The Swedish Transport Agency is the authority which, under the Railways Ordinance (2004:526), was given a mandate to issue permits to infrastructure managers and railway undertakings and to conduct safety oversight of the permit holders under the Railway Act (2004:519).

When the Swedish Transport Agency has received a permit application for the operation of railway services, an examination is carried out of the prospective railway undertaking's documentation that is to constitute its safety management. The application examination includes a check that the railway undertaking has procedures in place for the systematic management of risks that work will generate when the undertaking concludes agreements that impact on safety. The railway undertaking is the party that must ensure that the risks in their own operations are managed, including those that arise through concluded agreements. The Swedish Transport Agency also checks that the prospective railway undertaking has a system for following up and evaluating its safety management system.

The requirement for the railway undertaking to ensure that the risks in their own operations are managed, including those that arise through concluded agreements, is set out in the provisions of Article 6 of the Swedish Rail Agency's Regulations (JvSFS 2007:1) on safety

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management systems and other safety provisions for railway undertakings.

Article 10 of the Swedish Rail Agency's Regulations (JvSFS 2007:1) on safety management systems and other safety provisions for railway undertakings also requires the railway undertaking to evaluate the safety management system through regular, internal system audits.

The Swedish Transport Agency's oversight also checks, inter alia, how the railway undertaking follows up and evaluates operations, including activities to be managed in accordance with the requirements of Article 6 of the same provisions, i.e. internal activities performed by a contractor through a concluded business agreement.

When a railway undertaking has been granted a permit, the Swedish Transport Agency sets up a system to perform a follow-up safety audit of the railway undertaking within one year, in order to verify that the railway undertaking has the ability to operate railway services in accordance with the requirements set out in, inter alia, Articles 6 and 10 of the aforementioned regulations as well as compliance with other legal norms and their own safety provisions, of which the Swedish Transport Agency has a mandate to conduct safety oversight.

The Swedish Transport Agency, when examining an application and performing oversight of railway undertakings, focusses on all parts of the permit and safety management system and thereby considers itself to be acting in the spirit of the recommendation.

- In conjunction with application examination and oversight of railway undertakings, put particular emphasis on the undertaking's procedures as regards risk management and operation follow-up as well as with regard to organisation and administration of rules and routines (see sections 2.3.2 and 3.2.2) *(RJ 2012:05 R2).*

Reply RJ 2012:05 R2

Risk analyses will be performed upon all changes that may be considered significant[1]. The changes may be technical, operational, or organisational in nature. This is clear from Commission Regulation (EC) No 352/2009 of 24 April 2009 on the adoption of a common safety method on risk evaluation and assessment as referred to in Article 6(3)(a) of Directive 2004/49/EC of the European Parliament and of the Council. The Regulation is aimed directly at railway undertakings and infrastructure managers and applies in full as of 1 July 2012.

A guide to the aforementioned regulation is available on the European Railway Agency (ERA) website. The Swedish Transport Agency is aware of the double regulation that resulted from publication of Commission Regulation (EC) No 325/2009 and the provisions of the Swedish Rail Agency Regulations (JvSFS 2007:1 and JvSFS 2007:2) on safety management systems and other safety provisions for railway undertakings and infrastructure managers. The Swedish Transport Agency plans to update said regulations in 2014.

Commission Regulation (EU) No 1078/2012 on a common safety method for monitoring to be applied by railway undertakings and infrastructure managers after receiving a safety

[1] See Article 4 of Commission Regulation (EC) No 352/2009

certificate or safety authorisation and by entities in charge of maintenance was published on 16 November 2012. The Regulation is aimed directly at railway undertakings, infrastructure managers, and entities in charge of maintenance, and enters into effect on 7 June 2013. Application of the regulation means, inter alia, that the operators must carry out the monitoring process described in the annex to the document. The monitoring process is to contain the following activities:

a) the definition of a strategy, priorities, and plan(s) for monitoring;
b) the collection and analysis of information;
c) the drawing up of an action plan for instances of unacceptable non-compliance with requirements laid down in the safety management system;
d) the implementation of the action plan, if such a plan is drawn up;
e) the evaluation of the effectiveness of action plan measures, if such a plan is drawn up.

The Swedish Transport Agency, when examining an application and performing oversight of railway undertakings, focusses on all parts of the permit and safety management system and thereby considers itself to be acting in the spirit of the recommendation.

- When reviewing a permit and in audits, go through old, completed inspections and any remaining items to ensure that the deficiencies found have been addressed. (see Section 2.5.2) *(RJ 2012:05 R3).*

Reply RJ 2012:05 R3

The Swedish Transport Agency now checks the previous system audit and the railway undertaking shortcomings identified. If the railway undertaking has recently received its permit and the safety authority has not so far carried out a system audit, then a check is made instead of how the permit process proceeded with the undertaking concerned.

The Swedish Transport Agency tool that can be applied when shortcomings have been revealed in conjunction with safety oversight is described in Chapter 8, Section 4 of the Railway Act (2004:519). The Agency has a mandate to issue injunctions and bans. Injunctions and bans may be combined with fines.

An assessment is made of any shortcoming(s) identified through Swedish Transport Agency safety oversight work. Among other things, an assessment is made of the direct effects one or more shortcomings may entail for operations. A shortcoming that has or may have an immediate adverse impact on traffic safety will result in a ban. An injunction is issued in the case of shortcomings that do not have an immediate adverse impact on traffic safety. An operator who has been issued with an injunction or a ban may then explain to the Swedish Transport Agency how he/she will address the shortcoming(s). Bans remain in effect until withdrawn by the Agency.

Once an operator has presented a schedule and action plans to address the shortcomings covered by an injunction, the Transport Agency can then choose to trust that the operator will carry out the presented plans and close the case. The Transport Agency may, however, keep the case open until the operator has reported that the shortcomings have been rectified; then close the file. When the Transport Agency chooses to close a case immediately after a schedule and action plan have been presented, the Agency may and

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does occasionally conduct new safety oversight, though directed at the operator's previously presented schedule and action plan. If it is revealed that the operator did not rectify the previously identified shortcomings, the Transport Agency may issue an injunction with a fine. If the Transport Agency determines that the shortcomings remain because the operator is unable to rectify them, the Agency can revoke an issued permit pursuant to Chapter 8, Section 5(2) of the Railway Act (2004:519).

The Swedish Transport Agency believes the recommendation thereby to be met.

Lastly, the Swedish Transport Agency would like to notify SHK that the railway undertaking concerned in the investigation report has been granted license and safety certificate parts A and B. Under Chapter 3, Section 3 of the Railway Act (2004:519), safety certificate parts A and B are to be reviewed every five years, which is 2013 for the railway undertaking concerned. A Transport Agency review of safety certificate parts A and Part B consists of a system audit of the railway undertaking's entire safety management system.

- Consider initiating efforts in the area of responsibility for railway load securing such as in the case of the focus area identified for road transport in the Swedish Transport Agency's project on securing loads (see sections 2.5.3 and 4.3) (RJ 2012:05 R4).

Reply RJ 2012:05 R4

The Swedish Transport Agency is currently involved in international efforts regarding the securing of loads. The work includes intermodality and will affect rail, sea, and road transport. On 23 November 2012, the Agency responded to the Swedish Ministry of Enterprise, Energy and Communications report entitled *Redovisning av uppdrag att överväga hur det straffrättsliga ansvaret för brott mot bestämmelser om lastsäkring bör utformas (*Presentation of task of considering how the criminal liability for violation of provisions on the securing of loads should be drawn up). The Swedish Transport Agency has looked at how liability is regulated in road, sea, air, and rail transport. In addition, the Transport Agency is considering implementation of UIC rules on the securing of loads as a regulation, which means that they would be binding even for non-members of UIC. The Swedish Transport Agency does not currently intend to take any further initiatives.

Best Regards,

[signature]

Birgitta Hermansson

Road and Rail Director, Swedish Transport Agency