Statens haverikommission
Swedish Accident Investigation Board

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SUMMARY

Report RJ 2003:01e

Collision between free rolling goods train wagons and an engine at Hallsberg's engine marshalling yard in T County on the 22nd June 2002

Case J-003/02

SHK investigates accidents and incidents with regard to safety. The sole objective of the investigations is the prevention of similar occurrences in the future. It is not the purpose of this activity to apportion blame or liability.

Translated from the original Swedish by Ken Welch, at the request of the Swedish Accident Investigation Board.

In the event of discrepancies between the English and the Swedish texts, the Swedish text is to be considered the authoritative version.

The report is also available on our Web site: www.havkom.se

Statens haverikommission (SHK) Swedish Accident Investigation Board

Postadress/Postal address	*Besöksadress/Visitors*	*Telefon/Phone*	*Fax/Facsimile*	*E-mail Internet*
P.O. Box 12538	Wennerbergsgatan 10	Nat 08-441 38 20	Nat 08 441 38 21	info@havkom.se
SE-102 29 Stockholm Sweden	Stockholm	Int +46 8 441 38 20	Int +46 8 441 38 21	www.havkom.se

Statens haverikommission
Swedish Accident Investigation Board

2003-06-19 J-003/02

Swedish Railway Inspectorate
Swedish Work Environment Authority
Swedish Rescue Services Agency

Report RJ 2003:01e (Summary)

The Swedish Accident Investigation Board (Statens haverikommission, SHK) has investigated an accident that occurred on the 22nd of June 2002 at Hallsberg's engine marshalling yard, T County, where goods train wagons collided with an engine.

In accordance with section 14 of the Ordinance on the Investigation of Accidents (1990:717) the Board herewith submits a final report on the investigation.

SHK gratefully awaits notice (at the latest on the 31st of December 2003) of the follow-ups to the recommendations that are made in this report.

Lena Svenaeus Stig Gustafson

Urban Kjellberg

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SE-102 29 Stockholm Sweden	Stockholm	Int +46 8 441 38 20	Int +46 8 441 38 21	www.havkom.se

Report RJ 2003:01e (Summary)

J-003/02
Report finalized 2003-06-19

Train type	Goods train consisting of 29 wagons with a total mass of 1,324 tons and a length of 593 meters
Owner	Green Cargo AB
Time of occurrence	2002-06-22 at 23:07 hours *Note:* All times given in Swedish Daylight Savings Time (UTC + 2 hours)
Place of occurrence	Hallsberg's train marshalling yard, T County
Type of occurrence	Collision between free rolling goods train wagons and an engine
Weather	Wind: Southwest 2–5 m/s Weather: Fair conditions, scattered to overcast clouds, temp. 15°C
Number affected:	
train personnel	One
others	None
Injuries to persons	Train driver – minor injuries
Damage to goods wagons	Extensive
Damage to engine	Extensive
Other damage	Extensive damage to the tracks, points, electrical power lines and arrangements, concrete foundation, stop trestle, shunting arrangements, and signal cabinet.
Train driver's sex, age, training, and experience	Male, 38 years old, driver training 1986; served as train driver since 1986
Train driver's service in the previous 6 months	During the time period 2002-01-22 until 2002-06-22, among other duties, drove goods trains 28 times to the entry group at the train marshalling yard in Hallsberg
Train dispatcher's sex, age, training, and experience	Male, 42 years old, train dispatch training in the beginning of the 1980s; 76 own runs as train dispatcher in Hallsberg

The Swedish Accident Investigation Board (SHK) was notified on the 23rd of June 2002 at 10:00 hours that a collision between free rolling goods train wagons and an engine occurred at Hallsberg's engine marshalling yard in Örebro County on the 22nd of June 2002 at 23:07 hours.

The accident has been investigated by SHK represented by Lena Svenaeus, Chairperson, Stig Gustafson, chief investigator railways, and Urban Kjellberg, chief investigator rescue services.

Bertil Dahlgren of the Swedish Railway Inspectorate has assisted in the investigation as an operational expert.

The investigation was followed by Ove Anderson representing the Swedish Railway Inspectorate, Christer Strömgren representing the Swedish Rescue Services Agency, and Ann-Marie Brattström representing the Swedish Work Environment Authority.

SUMMARY

Late in the evening on the 22nd of June 2002 a goods train arrived with 29 wagons to the train marshalling yard in Hallsberg. For arrivals to this marshalling yard between Saturday at 18:00 hours and Sunday at 05:00 hours, the procedure in force was for the train driver him/ herself to disconnect the engine and secure the wagons against rolling. Normally it was the marshal personnel in Hallsberg who carry out these tasks.

The new routines had been introduced in January of the same year and Green Cargo AB, which is the operator and the train driver's employer, had issued an instruction on how this was to be accomplished. At least the first five wagons connected to the engine should be left with the brakes on and the first six wagons should be secured against rolling with scotches and brake block shoes. It was the first time that the train driver in question would apply the new routines. In the timetable that the driver followed, there was the following text in the remarks column: "Disconnect + Secure Against Rolling + Empty The Train YOURSELF."

The train was driven in to the so-called entry group and stopped on one of its tracks. The train driver emptied the pressurized air from the main lead in the goods wagons' brake system. He disconnected the engine and placed a scotch between the engine and the first wagon's forward pair of wheels. Then he went along the train and pulled the release handle to each and every wagon's main reservoir, which meant that the wagons' ability to brake was gone. The driver then received permission to start and began to drive the engine towards the engine marshalling yard.

Shortly thereafter, the train dispatcher detected that the wagons were rolling out on the passage track that connected the entry group and the engine marshalling yard. He then called the driver on the train in order to clarify what was happening. The train dispatcher and the train driver had difficulty communicating their messages to each other, which resulted in a delay before the driver understood the seriousness of the situation.

The wagons had begun to move, probably already when the engine left the wagons. After the scotch that was placed in front of the first wagon's wheels was thrown off the tracks, there were no obstacles for the goods wagons on their way down toward the engine marshalling yard. Since the marshalling yard lies on a steep slope, the wagons picked up substantial speed. There was no possibility that the train driver could capture the wagons, which slammed into the engine with great force. In conjunction with the collision, the forward axel on the first wagon derailed and this wagon rolled off the tracks about 100 meters at which point it overturned.

With the engine in front, the wagons continued towards the engine marshalling yard where they collided with a group of six engines and caused extensive damage to the marshalling yard and equipment. The train driver jumped from the engine and escaped with minor injuries. No one else was injured.

The direct cause of the wagons coming in motion was that the wagons were not secured against rolling in a satisfactory way. The train's total mass was 1,258 tons and a scotch had only been placed in front of the first wagon's first pair of wheels, which considering the marshalling yard's steep slope was completely insufficient. Also, there was no safety point or other barrier that could prevent the wagons from rolling onto the tracks that led to the engine marshalling yard.

There has existed a relatively detailed instruction for how train drivers should safety wagons against rolling on arrival to Hallsberg train marshalling yard at the time of the occurrence. However, the information regarding the new routines at Hallsberg that had been given to the train driver in question has most likely been insufficient. As well, there is no control that

the content in the new instructions was correctly understood by those concerned. In addition to this, the timetable that the driver applied contained information that partly diverged from the instructions and which, according to the driver's own statement, misled him. These circumstances have been a contributing cause of the accident.

Of importance in this context is the fact that Green Cargo during 2002 gradually introduced a new documentation system, in which they changed the methods for communicating new rules and routines to the drivers. SHK considers that a risk analysis, or at least a risk assessment, should have been made before they introduced the new system.

Review of the rescue efforts that were made by Nerikes Fire Department have shown that it took a remarkably long time between the emergency disconnection of electricity at the marshalling yard and the grounding of all the electrical power lines, which could have had very serious consequences if life saving efforts had been required or if wagons leaking dangerous goods had needed attending to.

The reaction time for the National Rail Administration´s representative responsible for the accident scene, should re-evaluated and the collaboration between the rescue services, the traffic operators, and the track owners should be practiced and made more effective. In addition to this, SHK submits recommendations for the arrangement of a safety track at the entry group and for the review of Green Cargo's routines regarding communicating new directives and routines to its personnel.

RECOMMENDATIONS

- The National Rail Administration should consider arranging a safety track as close to the entry group's eastern end as possible, in which the point to the safety track would automatically switch to the safety position after a shunting movement or the passage of the train (*RJ 2003:01e R1)*.

- The National Rail Administration should for its own internal sake and for external collaborating bodies, change the routines regarding reaction times for its representative responsible for the accident scene *(RJ 2003:01e R2)*.

- The National Rail Administration should, in consultation with the Swedish Rescue Services Agency, review the routines for the emergency disconnection of electrical power and the grounding of electrical power lines for railway accidents that cover a large geographic area *(RJ 2003:01e R3)*.

- The Swedish Work Environment Authority should, in consultation with the Swedish Railway Inspectorate, ensure that Green Cargo improves its routines for the communication of information to personnel regarding new directions and routines *(RJ 2003:01e R4)*.