

OTIF



**ORGANISATION INTERGOUVERNEMENTALE POUR
LES TRANSPORTS INTERNATIONAUX FERROVIAIRES**

**ZWISCHENSTAATLICHE ORGANISATION FÜR DEN
INTERNATIONALEN EISENBAHNVERKEHR**

**INTERGOVERNMENTAL ORGANISATION FOR INTER-
NATIONAL CARRIAGE BY RAIL**

OTIF/RID/CE/GT/2010/2

27 April 2010

(English only)

RID: 11th Meeting of the Working Group on Tank and Vehicle Technology
(Berne, 18 and 19 May 2010)

Subject: Report rail accident at Barendrecht

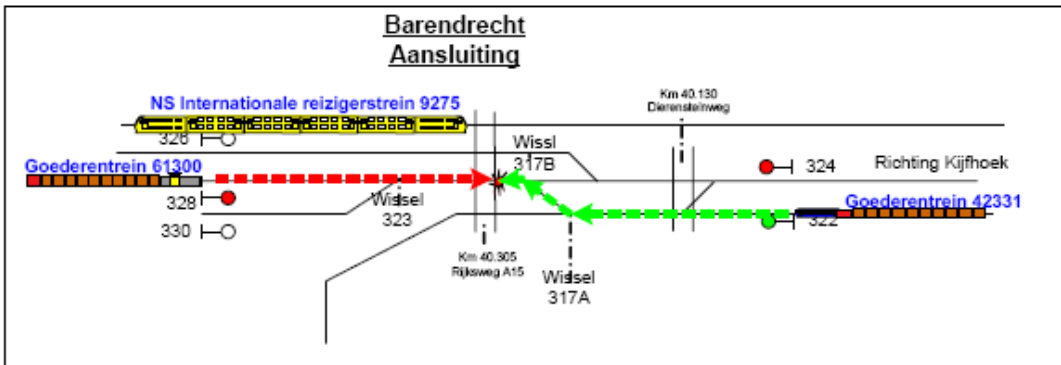
Transmitted by the Netherlands



For reasons of cost, only a limited number of copies of this document have been made. Delegates are asked to bring their own copies of documents to meetings. OTIF only has a small number of copies available.

1. Description of accident

At around 22:30 on Thursday 24 September 2009, two freight trains collided head-on at Barendrecht junction (Barendrecht Aansluiting). A Benelux passenger train approaching on an adjacent track collided with a derailed freight wagon.



Afb.3: Situatieschets van de botsing

Barendrecht aansluiting = Barendrecht junction

Goederentrein = Freight train

Wissel = (Switch) point

Rijksweg A15 = A15 Motorway

Internationale reizigerstrein = International passenger train

Richting Kijfhoek = To Kijfhoek

Dierensnelweg = Wildlife crossing

Figure 3: Situation sketch of the collision

The two locomotives and the first three wagons (two empty container wagons and a tank-wagon holding a dangerous substance) of train 61300 were derailed. The front locomotive derailed but came to a stop directly above the track. The front wheelset of the second locomotive derailed to the left of the track, the second wheelset stayed on track, while the third and fourth wheelsets derailed to the right. Both locomotives sustained serious damage.

A catenary support had been hit and had fallen onto the second locomotive. The first wagon was still hooked up to the second locomotive and derailed to the right, ending up on the adjacent Benelux passenger track. The second and third wagons derailed to the left.

The locomotive and the first three wagons of train 42331 derailed. The locomotive was propelled onto the top of the first locomotive of train 61300 and was seriously damaged. The three wagons all derailed to the left of the track.

2. Composition of the trains

Freight train 61300 came from Onnen and was headed for the Kijfhoek marshalling yard. The train approached Barendrecht junction from the direction of Rotterdam and was headed towards Kijfhoek Noord. The train had two diesel-electric locomotives, type 6400, bearing the locomotive numbers 6514 (first locomotive) and 6415 (second locomotive). The rest of the train comprised, from front to back, 2 empty, type *Sgjkkmms* container wagons, 7 type *Zans* tank-wagons containing natural gas condensate (HIN/UN 33/1268), 2 type *Zacns* tank-wagons containing hydrogen peroxide, aqueous solution (HIN/UN 58/2014), and 1 type *Habbiillns* wagon with sliding sides containing chloroacetic acid, solid (HIN/UN 68/1751). The train weighed 919 tonnes, and had a braked weight of 615 tonnes (braked weight percentage of 62%). The train was 205 metres long and was being driven by a fully qualified driver.

Freight train 42331 was going from Rotterdam Maasvlakte to Warsaw Cargosped (Poland). Besides the locomotive, type *Class 66*, bearing the locomotive number 6616, train 42331 consisted entirely of loaded container-carrying wagons, type *Sdggmrs*. The train approached Barendrecht junction from Kijfhoek. The 21st wagon contained caustic alkali liquid n.o.s. (HIN/UN, 80/1719), a dangerous substance. The train weighed 1,116 tonnes, and had a braked weight of 1,055 tonnes (braked weight percentage of 94.5%). The train was 585 metres long and was being driven by a fully qualified driver.

Passenger train 9272

The third train involved in the accident was international Benelux passenger train 9272 travelling from Amsterdam Central Station to Brussels Central Station. It comprised nine type *ICRm* passenger carriages, pulled by an electric locomotive, type *Traxx*. The train was operated by a fully qualified driver of the Belgian railways (SNCB) and was carrying about 150 passengers. The train held a safety certificate issued by NS Reizigers (Dutch rail passenger services) for the Dutch railway network.

3. Dangerous substances

Freight train 61300

- 7 tank-wagons containing UN 1268, natural gas condensate, 3, packing group II (HIN 33).

3380 7844 849-9	content	94,822 litres
3380 7844 874-7	content	94,822 litres
3380 7844 848-1	content	94,795 litres
3380 7844 882-0	content	94,982 litres
3380 7844 843-2	content	94,891 litres
3380 7844 881-2	content	94,847 litres
3380 7844872-1	content	94,837 litres

- 2 tank-wagons containing UN 2014, hydrogen peroxide, aqueous solution, 5.1 (8), packing group II (HIN 58).

3384 7840035-5	content	60,000 litres
3384 7840029-8	content	60,000 litres

- 1 part-load wagon containing UN 1751, chloroacetic acid, solid, 6.1 (8), packing group II, load of 87.5 tonnes.

Freight train 42331

Only one wagon of this train contained a dangerous substance, namely 23.5 tonnes of UN 1719 (HIN 80), but it was the last wagon but one and was not involved in the accident.

4. Accident response

The tank-wagons were salvaged during the night of 25/26 September 2009. The A15 overpass was closed to road traffic. After the wagons containing dangerous substances had been salvaged, a Leopard Tank recovery vehicle provided by the Army was used to clear away the locomotives and remaining wagons. Passenger services gradually resumed on the adjacent tracks on the morning of 25 September. Freight transport to and from the Port of Rotterdam area was seriously disrupted.

The first two tank-wagons of train 61300 were so badly damaged that they had to be emptied (by pumping) before they could be moved. Initially, the accident response crew of railway infrastructure manager ProRail planned to raise the loaded tank – which had been ripped off the wagon's under-

carriage – and put it on a new undercarriage. This plan was abandoned at the request of the Transport and Water Management Inspectorate and Wilchem, a private incident management company, because the risk of the tank rupturing was too great. Wilchem prepared the pumping operation, which involved fitting the tanks with new couplings as the original ones had been ripped off in the accident.

The tank-wagons in question were leased by SABIC to carry out daily, dedicated transport operations from Roodeschool to Botlek Rotterdam and back.

5. Additional information

The 7 tank-wagons containing UN 1268 (HIN 33), natural gas condensate were all fitted with crash buffers, although these are not legally required for the substance in question (3.2, column 13) under section 6.8.4 of the RID.



6. Follow-up/investigation

The Dutch Safety Board (OVV) is currently investigating the accident and will present its conclusions later this year. As all the data have been submitted to the OVV, further information cannot be provided until its findings are published.

7. Findings

Based on a preliminary investigation of the log files, interviews with various parties, and an assessment of the scene of the accident, the Transport and Water Management Inspectorate has concluded that, before the collision occurred, the driver of train 61300 proceeded past signal 328 on the DG track at Barendrecht junction while it was indicating a stop.

1. Mode	
<input checked="" type="checkbox"/> Rail Wagon number (optional):	<input type="checkbox"/> Road Vehicle registration (optional):
2. Date and location of occurrence	
Year: 2009 Month: 09 Day: 24 Time: 22:30	
<input type="checkbox"/> Station <input type="checkbox"/> Shunting/marshalling yard <input type="checkbox"/> Loading/unloading/transshipment site Location / Country: Barendrecht (Netherlands) or <input checked="" type="checkbox"/> Open line Description of line: Rotterdam – Kijfhoek Kilometres: 40.305	<input type="checkbox"/> Road <input type="checkbox"/> Built-up area <input type="checkbox"/> Loading/unloading/transshipment site <input type="checkbox"/> Open road Location / Country:
3. Topography	
<input type="checkbox"/> Gradient/incline <input type="checkbox"/> Tunnel <input checked="" type="checkbox"/> Bridge/Underpass <input type="checkbox"/> Crossing	
4. Particular weather conditions	
<input type="checkbox"/> Rain <input type="checkbox"/> Snow <input type="checkbox"/> Ice <input type="checkbox"/> Fog <input type="checkbox"/> Thunderstorm <input type="checkbox"/> Storm Temperature: 8 °C	
5. Description of occurrence	
<input type="checkbox"/> Derailment/Leaving the road <input checked="" type="checkbox"/> Collision <input type="checkbox"/> Overturning/Rolling over <input type="checkbox"/> Fire <input type="checkbox"/> Explosion <input type="checkbox"/> Loss <input type="checkbox"/> Technical fault Additional description of occurrence: Frontal collision of two cargo trains carrying dangerous goods.	

6. Dangerous goods involved						
UN Number ⁽¹⁾	Class	Packing Group	Estimated quantity of loss of products (kg or l) ⁽²⁾	Means of containment ⁽³⁾	Means of containment material	Type of failure of means of containment ⁽⁴⁾
1268	3*	II	+/- 20 litres	7	Steel	
2014	5.1*	II	0	7	Steel	
1751	6.1*	II	0	13	Steel	
1719	8**	II	0	14	Steel	

(1) For dangerous goods assigned to collective entries to which special provision 274 applies, also the technical name shall be indicated.	(2) For Class 7, indicate values according to the criteria in 1.8.5.3.
(3) Indicate the appropriate number 1 Packaging 2 IBC 3 Large packaging 4 Small container 5 Wagon 6 Vehicle 7 Tank-wagon 8 Tank-vehicle 9 Battery-wagon 10 Battery-vehicle 11 Wagon with demountable tanks 12 Demountable tank 13 Large container 14 Tank-container 15 MEGC 16 Portable tank	(4) Indicate the appropriate number 1 Loss 2 Fire 3 Explosion 4 Structural failure

7. Cause of occurrence (if clearly known)

- Technical fault
- Load security
- Operational cause (rail operation)
- Other:

8. Consequences of occurrence

Personal injury in connection with the dangerous goods involved:

- Deaths (number: 1)
- Injured (number: 1)

Loss of product:

- Yes
- No
- Imminent risk of loss of product

Material/Environmental damage:

- Estimated level of damage ≤ 50,000 Euros
- Estimated level of damage > 50,000 Euros

Involvement of authorities:

- Yes → Evacuation of persons for a duration of at least three hours caused by the dangerous goods involved
- Closure of public traffic routes for a duration of at least three hours caused by the dangerous goods involved
- No

* in train of carrier 1
** in train of carrier 2