



KÖZLEKEDÉSBIZTONSÁGI
SZERVEZET

TRANSPORTATION SAFETY
BUREAU

FINAL REPORT

**2006-047-6
MARINE INCIDENT**

**Dunaföldvár, Danube river, at river km 1561
11 December 2006**

**tugboat
ANR-989**

The sole objective of the technical investigation is to reveal the causes and circumstances of marine casualties, serious and very serious casualties as well as marine incidents, and to initiate the necessary technical measures and make recommendations in order to prevent similar cases in the future. It is not the purpose of this activity to apportion blame or liability.

This present investigation was conducted on the basis of

- Act XLII of 1995 on marine transport,
- SOLAS 1974/1978 and Act XI of 2001 on its proclamation,
- Act CLXXXIV of 2005 on the technical investigation of aviation, rail and marine accidents and incidents (hereinafter referred to as Kbv.),
- Decree 9/2006 (II.27.) of Minister of Economy and Transport (MET) on the detailed rules regarding technical investigation of serious marine casualties and incidents.
- In absence of other related regulation of the Kbv., the Transportation Safety Bureau of Hungary conducted the investigation in accordance with Act CXL of 2004 on the general rules of administrative authority procedure and service,
- The competence of the Transportation Safety Bureau of Hungary is based on the Kbv. until 31st December 2006 and on Government Decree 278/2006 (XII. 23.) from 1st January 2007 respectively.

Under the aforementioned regulations

- The Transportation Safety Bureau of Hungary shall investigate serious marine casualties.
 - The Transportation Safety Bureau of Hungary at its own discretion may investigate marine incidents which - in its judgement - would have resulted in casualties in other circumstances.
 - The technical investigation is independent of any administrative, infringement or criminal procedures.
 - In addition to the aforementioned laws, the A.849 IMO Code (Code for the Investigation of Marine Casualties and Incidents) is applicable.
- This present Final Report shall not be binding, nor shall an appeal be lodged against it.

Incompatibility did not stand against the members of the IC. Persons participating in the technical investigation did not act as experts in other procedures concerning the same case and shall not do so in the future.

The IC shall safe keep the data having come to their knowledge in the course of the technical investigation. Furthermore, the IC shall not be obliged to make the data – regarding which the owner of the data could have refused the disclosure of the data pursuant to the relevant act – available to other authorities.

This present final report

was based on the Draft Report prepared by the IC and accepted by the Director-General of TSB. The Draft Report was sent to the relevant parties - defined by law - for reflections.

ABBREVIATIONS

MTW (KHVM)	Ministry of Transportation, Telecommunication and Water (Közlekedési, Hírközlési és Vízügyi Minisztérium)
MET (GKM)	Ministry of Economy and Transport (Gazdasági és Közlekedési Minisztérium)
IMO	International Maritime Organization
TSB	Transportation Safety Bureau
NTA	National Transport Authority
Kbvt.	Act CLXXXIV of 2005 on the technical investigation of aviation, rail and marine accidents and incidents
SOLAS	Safety of Life at Sea
VDR	Voyage Data Recorder
RSOE	National Association of Radio Distress-signalling and Infocommunications
NAVINFO	Marine Emergency Assistance and Information System
ms	motor ship
IC	Investigating Committee

SUMMARY

Occurrence category		Marine incident
Vessel	manufacturer	SNTIER NAVAL Giurgiu shipyard rebuilt at: NAVROM REARATI shipyard
	type	tugboat
	flag	Romania
	registration mark	ANR – 989 ; name: Mercur 201 ms.
	registration number	391-GL
	owner	CNFR Navrom S.A. Galati
	operator	CNFR Navrom S.A. Galati
	charterer	n.a.
Occurrence	date and time	11 December 2006 at 12:20 LT
	location	Dunaföldvár, river km 1561
	fatalities	none
	number of injured	none
Extent of damage to the vessel		cannot be established
Country of registry		Romania
Registration authority		Autoritatea Navala Romana
Authority supervising manufacturing		Autoritatea Navala Romana
Competent investigating body (according to the location of the occurrence)		TSB

Reports and notifications

The incident was reported to the duty services personnel of TSB by the officer on duty of the competent police at 12 hours 50 minutes on 11th December 2006.

The on duty personnel of TSB reported the occurrence to TSB's head of department on duty at 12 hours 55 minutes on 11th December 2006.

The Investigating Committee

The Director-General of TSB appointed the following Investigating Committee (hereinafter referred to as IC) on 11th December 2006 to investigate the marine incident:

Investigator-in-charge	Gábor Wimmer	accident investigator
Member of the IC	Pál Burda	field investigator technician

Overview of the investigation

The IC conducted a site survey on 21st December 2006, interviewed the members of the crew and made photocopies of the documents of the boat.

Overview of the course of the occurrence

The tugboat sailed upstream with three manned and three unmanned barges. There was normal (daylight) visibility. Due to strong currents, having passed under Dunaföldvár bridge, the skipper applied maximum thrust and steering in order to keep the boat in the waterway. However, his efforts proved unsuccessful as the ropes connecting the boat and the barge-assembly broke in several places and the front right barge grounded. As a result, the barge-assembly became detached from the tugboat and blocked the waterway.

1. FACTUAL INFORMATION

1.1 The course of the occurrence

According to the captain of the tugboat, the boat sailed upstream from Mohács towards Bratislava with three manned and three unmanned barges. When passing under Dunaföldvár bridge, the assembly of barges was pushed towards the left bank by strong currents. The skipper tried to direct the barge-assembly towards the red buoy close to the right bank by firm counter-steering. During the manoeuvre, the connecting ropes broke and the front right barge grounded at the edge of the waterway at river kilometre 1561. As a result of the breakage of the ropes, the barges became detached from the tugboat and were positioned (at the time of the site survey) as shown in the pictures/sketch at the end of this report.

1.2 Injuries to persons

Injuries	Crew	Passengers	Others
Fatal	0	0	0
Serious	0	0	0
Minor	0	0	0
None	0	0	0

1.3 Damage to vessel

The IC established in the course of the site survey that there was no damage to the boat above the water-line. The ropes connecting the boat and the barge-assembly broke in several places.

1.4 Other damage

The shank of the anchor of barge no. 11504 broke.

1.5 Personnel information

1.5.1 The captain of the boat

Age and gender		44-year-old man
Qualifications	Certificate(s) valid	unknown
	Medical certificate	unknown
	Other certificate(s)	unknown
Date of embarkation	Period of time in service on the given boat	unknown
	in the last 12 months	on contractual basis
	in the last 30 days	occasionally, when required

1.5.2 Chief engineer

Age and gender		38-year-old man
Qualifications	Certificate(s) valid	unknown
	Medical certificate	unknown
	Other certificate(s)	unknown
Date of	Period of time in service	unknown

embarkation	on the given boat	
	in the last 12 months	unknown
	in the last 30 days	occasionally, when required

1.5.3 Other personnel

N. a.

1.6 Vessel information

Place of manufacturing	Santier Naval Giurgiu (Romania)
Year of manufacturing	1987 / 2006
Place and date of last inspection	11. 04. 2006
Serviceability certificate valid	28. 01. 2009

1.6.1. Hull information (Mercur 201 ms)

Length of hull	34,64 m
Width of hull	10,09 m
Maximum draught	2.40 m
Last underwater inspection	2006.04.11.

1.6.2 Main engine information

Year of manufacturing	2005	
Manufacturer	Cummings	
Type	2xKTA 38-M2 1766 kw	
Operation time	unknown	
Operation time	Since last overhaul	unknown
	Since last maintenance	unknown

1.6.3 Data of the faulty device

N. a.

1.6.4 Load information (11505)

Net weight	294 000 kg
Weight of fuel	-
Weight of cargo	913.015.-kg
In total	-
Displacement tonnage	1 364 000 kg
Permitted maximum draught	2.50 m
Draught at the time of the occurrence	2.05 m

1.7 Meteorological information

Visibility: normal (daylight)

Water level: -86 cm at Dunaföldvár

Ford depth: 20 dm; 22 dm

1.8 Aids to navigation

The navigation equipment had no effect on the occurrence, therefore their detailed description is not required.

1.9 Communications

Communications equipment had no effect on the occurrence, therefore their detailed description is not required.

1.10 Port information

n. a.

1.11 Data recorders

The boat did not have a data recorder on board.

1.12 Wreckage information

There was no wreckage.

1.13 Medical and pathological information

Medical and pathological examination was not necessary.

1.14 Fire

There was no fire.

1.15 Survival aspects

The occurrence was not life-threatening, no one was injured, therefore the survival aspects were not analysed.

1.16 Test and research

The IC did not conduct and test or research.

1.17 Organisational and management information

The organisation and management had no effect on the occurrence, therefore their detailed description is not required.

1.18 Additional information

The IC did not receive any additional information and does not wish to disclose any additional information.

1.19 Useful or effective investigation techniques

The investigation did not require the application of new techniques.

2. ANALYSIS

The tugboat had valid nautical documents and was in good technical condition at the time of the incident. Its navigations equipment operated normally. The crew of the boat was in possession of the relevant weather and water level information. Based on the available data and the interviews with the crew, it can be stated that the tugboat sailed upstream with three manned and three unmanned barges, with normal (daylight) visibility. It passed under Dunaföldvár bridge, and then as a result of strong force induced by a correction manoeuvre, the ropes connecting the barge-assembly with the boat broke. The front right barge grounded at the edge of the waterway at river kilometre 1561. The anchors of barges no. 1659 and 11504 were lowered. The anchor of the latter barge broke in the course of the manoeuvre. Barge no. 11659 was taken away by ISACCEA ms. (which was nearby at the time of the incident) and anchored at river km 1563. During the refloating manoeuvre, the stern of ISACCEA ms. grounded and three of its rudder-blades broke.

The barges should have been anchored before Dunaföldvár bridge as the ford depth is 20 dm between river kilometres 1559.8 and 1559.7. Although the barge-assembly got through this reach, the skipper should not have assumed that the boat with the barges would pass under the bridge safely, without problems.

3. CONCLUSIONS

Although the tugboat with the barges was sailing at a rather difficult reach, the incident was most probably caused by the inattention and impatience of the skipper as well as the fact that he took too much risk in manoeuvring. Dunaföldvári bridge and its area is a critical reach of the river as to chances of grounding. The skipper of Mercur 201 ms. tried to sail under the bridge with 6 barges loaded with an almost 6000-ton-cargo. According to the skipper, when sailing under the bridge, the strong current pushed the barge-assembly towards the left bank. In order to keep the boat and the barge-assembly in the waterway, the skipper applied maximum thrust and steering force, as a result of which - according to the skipper - the connecting ropes broke at four places and the front right barge grounded. (However, the IC considers it highly unlikely that almost all the ropes broke *as a result of* the sudden counter-steering.) If he had anchored at least two barges under the bridge, he would probably have managed to sail under the bridge at the difficult reach with the other four barges without problems. Based on the data of Hydroinfo, the ford depth on 11th December 2006 was 20-22 dm at Dunaföldvár. The draughts of the barges were 2.05 dm and 2.17 dm respectively. Therefore it can be concluded that the skipper took too high risk when trying to sail at that reach with six large-draught barges.

4. SAFETY RECOMMENDATIONS

The incident could have been prevented with due foresight and better care, therefore the IC does not wish to issue safety recommendations.

5. Appendices

Photos taken at the site of the incident.

Table of water levels and ford conditions.

Budapest, 19th August 2009.

Gábor Wimmer
Investigator-in-charge

Pál Burda
field investigator
technician



EXPECTED WATER LEVELS AND FLOW-RATES

11 December 2006

Állomás	Folyó	Vízállás (cm)				Vízhozam (m ³ /s)			
		1 nap múltva	2 nap múltva	3 nap múltva	4 nap Múltva	1 nap múltva	2 nap múltva	3 nap múltva	4 nap múltva
Korneuburg	Duna	230				1160			
Pozsony-Dévény		170				1260			
Komárom		104				1200			
Nagymaros		27	30			1290	1320		
Budapest		137	141			1290	1320		
Dunaföldvár		-87	-87	-86		1150	1150	1150	
Paks		41	39	41		1230	1220	1230	
Baja		161	160	160	161	1240	1240	1240	1240
Mohács		184	184	184	184	1250	1250	1250	1250

FORD CONDITIONS ON THE DANUBE

Based on water levels measured at 7 a. m. on 11 December 2006

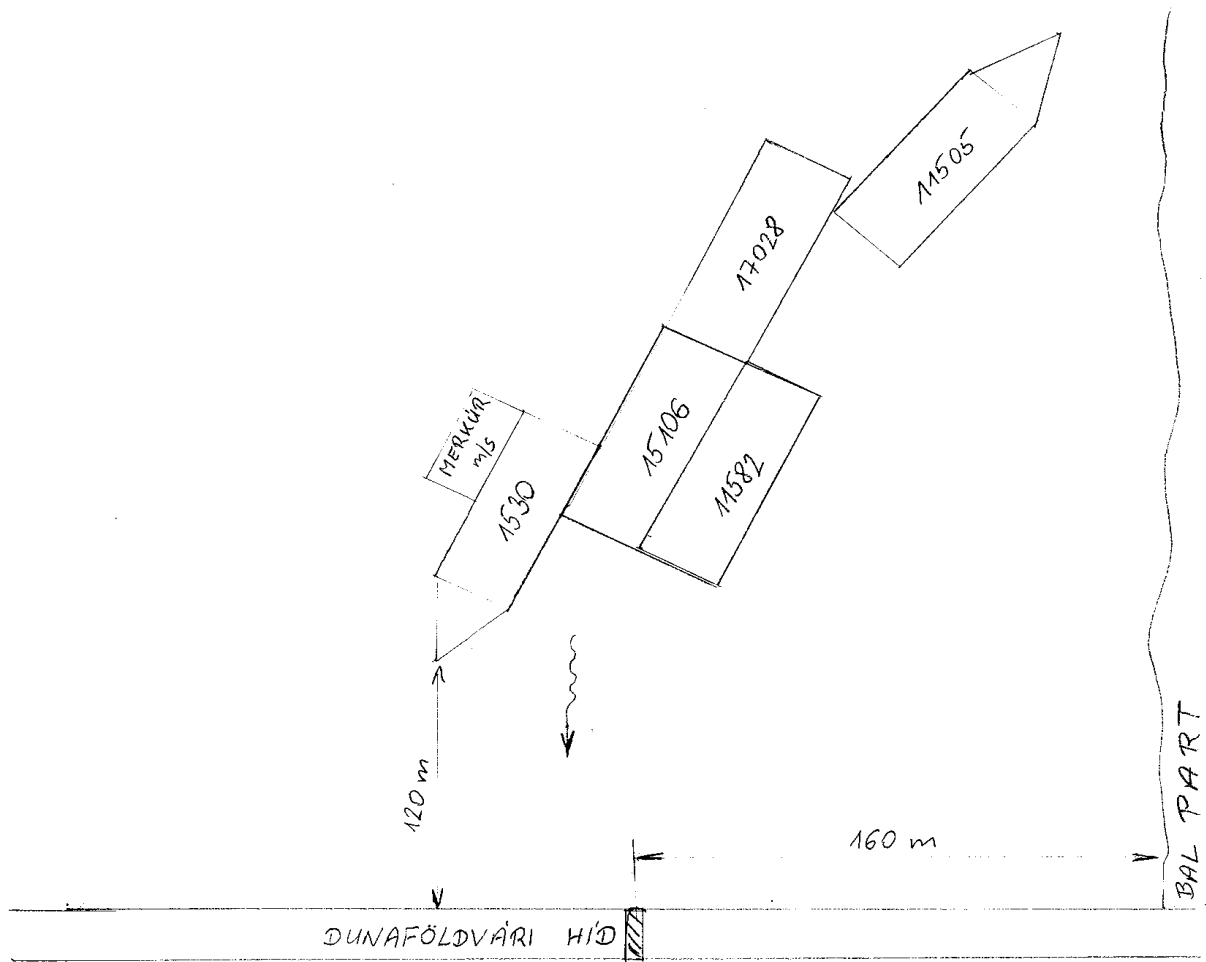
Sor-szám	Kezdeté Fkm	Vége Fkm	Mélysége Dm	Szélessége m	Hossza M	Helye kód	Mélysége dm	Szélessége m	Hossza m	Egyéb kód
1	1808.0	1807.5	HU	100	500					
2	1796.7	1794.8	22	110	1900					
3	1792.1	1791.8	27	120	300					
4	1735.5	1733.7	21	100	1800	PU	23	60	1800	
5	1726.0	1724.7	25	130	1300					
6	1722.3	1721.8	24	100	500	KO	26	50	500	
7	1714.2	1713.9	24	100	300					
8	1711.3	1710.7	23	80	600					
9	1701.0	1700.0	25	100	1000					
10	1698.9	1697.8	23	100	1100	ZU	24	50	1100	
11	1694.2	1693.8	HU	120	400					
12	1684.4	1684.2	HU	90	200					
13	1680.4	1679.8	HU	80	600					
14	1667.5	1666.8	25	100	700					
15	1653.0	1651.8	26	100	1200					
16	1638.4	1637.4	26	90	1000					
17	1623.6	1622.6	HU	90	1000					
18	1615.9	1615.1	26	100	800	ZU	28	50	800	
19	1590.7	1590.1	26	80	600					
20	1581.5	1580.5	26	110	1000					
21	1561.0	1560.0	22	60	1000					
22	1559.8	1559.7	20	140	100	BP	23	40	100	
23	1558.5	1557.5	22	100	1000	ZU	23	60	1000	
24	1555.8	1554.8	23	80	1000					
25	1551.5	1551.4	HU	130	100					
26	1530.5	1529.5	HU	150	1000					
27	1522.0	1521.5	25	140	500	PU	27	100	500	
28	1483.5	1482.5	HU	150	1000					
29	1469.0	1468.0	HU	130	1000					



The tugboat and its disassembled barges.



The barge grounded at the left bank.



Sketch made by the skipper of the boat.