



Transporta nelaiemes gadījumu un incidentu izmeklēšanas birojs

Transport Accident and Incident Investigation Bureau of the Republic of Latvia

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Fall of stevedore on container ship Wes Janine during cargo loading operation with loss of life in Riga port on 20.02.2017.



Marine Investigation department

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GLOSSARY OF ABBREVIATIONS AND ACRONYMS

AB-Able Seaman

DOC - Document of Compliance

LMA- Latvian Maritime Administration

LT-Local Time

MAIC- Marine Accident Investigation Committee of Cyprus

MSI- Maritime Safety Inspectorate of LMA

RUT- Riga Universal Terminal, company

SMS- Safety management system

TAIIB - Transport Accident And Incident Investigation Bureau

TEU – Twenty (feet) Equivalent Unit : measure of a ship’s cargo carrying capacity. The dimensions of one TEU are equal to that of a standard 20 feet (6,1 m) shipping container

ZO- numeration of berthing locations (piers) in Riga Port

CCTV- Closed-circuit television

1. Preamble

1.1. The sole objective of the investigation of an accident shall be the prevention of future accidents through the ascertainment of its causes and circumstances. It shall not be the purpose of an investigation to determine liability nor to apportion blame.

1.2. Latvian Transport accident and incident investigation Bureau (hereinafter-Bureau) has received the information about fatality on board of Cyprus flagged container ship Wes Janine from MSI at 12.30 on 20 February 2017. The fall of stevedore into cargo hold is not directly related with the ship operations, but still is related with the working environment on-board.

1.3. Cyprus competent Authority – MAIC, taking into consideration the circumstances, the location and the seriousness of the accident, has requested Bureau to undertake the responsibility of lead investigating authority (as competent authority of a lead investigating State) into the casualty in accordance with the IMO Casualty Investigation Code Chapter 7, and EU Directive 2009/18/EC Art. 7.

1.4. RUT has carried out internal (company's) investigation of the fatal accident under the auspices of Latvian Labour Inspection.

2. Narrative

On 19 February 2017, around 23.30 LT containership Wes Janine has berthed on ZO-1, RUT, in order to load containers. Cargo loading plan had been discussed and mutually approved by RUT and vessel's crew before 00.00 LT . At 01:45 LT two RUT stevedores had been involved in cargo operations. Loading operations have been carried out by shore crane operated by crane operator, also one of RUT stevedores was working as "Signaller" on board, with the task of visual control of containers to be stockpiled in holds. The loading operations has been executed normally, fully according plan. At around 06.00 LT the 2nd officer who was performing safety round on deck was informed by RUT crane operator that one of their colleagues is missing in containers hold area. At 06:10LT the 2nd officer with other stevedores found that the missing stevedore is lying on bottom of cargo hold in cell guide area. Ambulance was called around 06:31LT by RUT stevedores. The 2nd officer found that the stevedore was not breathing and moving. Ambulance arrived and stated that the stevedore is dead. His body was transferred ashore. At time of the accident side there were three persons on duty from vessel: duty

officer, AB who was monitoring cargo operations, AB as a gangway watches, **however, there are no direct witnesses of occurrence.**

3. Facts

Ships' particulars:

Vessel's name	Wes Janine
IMO Number	9504073
Call sign	5BLW4
Type of ship	Container vessel (Fully Cellular)
Flag	Cyprus
Port of registry	Limassol
Registered owner	MS "WES JANINE" Schiffahrts GmbH & Co. KG
Registered Manager	Wessels Reederei GmbH & Co. KG.
Classification Society	Bureau Veritas
Gross Tonnage	10585t
TEU	1036
Registered length	142,42 m
Registered width	23,40 m
Draft	8,10 m
Year of building	2012 (China)
Hull material	Steel
Crew	12

At the moment of accident was berthed by her starboard side nearby the pier Nr. ZO-1

Weather conditions:

Weather was not contributory factor during the accident

4. Description

In accordance with Wes Janine crew evidence:

Upon arrival in Riga port and completion of berthing operations 19.02.2017 at 23.30 LT crew has confirmed and approved by Master's sign the loading plan with RUT representatives. Afterwards, as Master stated, sole crew's responsibility during the cargo operations is to control the safety of the vessel and vessel's superstructure as the matter of preventing damages, scratches or unlawful penetrations from ashore. Crew does not organize, neither control loading operations in matters or safety of involved shore workers. Three crew members were on watch at time of accident. None of crew members has been designated to attend container holds during loading manipulations, however, about 03.00, shortly before the accident, one of the watch sailors has verbally warned Signaller stevedore (who perished later) that he (stevedore) should not stand in dangerous location within container cell guide area. Crew has not witnessed the accident.

In accordance with RUT investigation report:

Cargo (containers) loading operations have started at 02.00 LT (20.02.17). Containers were loaded using standard procedures "shore-ship" by slewed shore crane. Upon loading on board each container was being secured by fully automated lashing twist locks in tiers, where human interference is minimal. At 02.00 also stevedore as "Signaller" was designated with the task of visual control of containers to be properly secured in cargo holds and tiers. Signaller had walkie-talkie radio set for immediate communications with crane operator, if necessity arises.

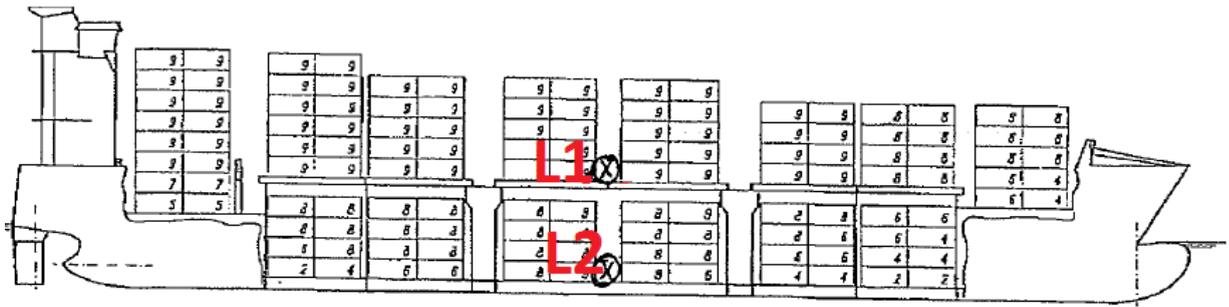


Fig.1. Outline of vessel's cargo tiers; "L1"-location of stevedore on twindeck during cargo loading operations; "L2"-location of stevedore to be found on deck after fall ($\Delta H=10,36m$).

The work was going normally before 05.00 L (around four hours consecutively), when Crane operator was trying to call "Signaller" by phone. After several failed attempts to phone him, Crane operator had embarked the vessel, informed Wes Janine 2-nd officer about missing worker, and later , around 06.00 LT has found Signaller laying on the bottom of guide cell area within the cargo hold (between bay 18 and 14, row 07) . Crane operator had checked the pulse of Signaller and, has found him diseased. Also ship's 2nd officer found that the stevedore was not breathing and moving. Ambulance was called around 06:31LT by RUT representatives. Paramedics arrived and stated that the stevedore is dead. Body was transferred ashore around 08.00. The post-mortem examination report stated that death was caused by blunt force injury on head. Toxicological investigations found 1.21 ‰ of alcohol in blood. None traces of medical or recreational drugs were found.

5. Analysis

5.1 The context and circumstances environment of events related to the marine casualty

5.1.1. **Outline of Wes Janine :** The container storage locations onboard of the vessel are referred to as bays, which ran in the forward and aft direction of the ship. Within each hold, containers are being stacked longitudinally and vertically with their locations identified by row, bay and tier. Rows are numbered from port to starboard. Twenty-foot Equivalent Unit (TEU) containers could be loaded in each section of a row in sequence. Cargo holds are separated by means of cellular construction, guide cell area, where large apertures are cut in floor plates, in order to take weight off the structure; those are referred as the lightening holes. The average diameter of such elliptic shaped lightening hole is around 1.3 meter. Those

apertures normally are not guarded by any means of physical barriers neither warning signs. The overall height of vertical open space beneath two sequenced lightening opening is 10.36 meters on site of accident (Bay18 (Hold No.2))



Fig. 2. Left: Lightning hole in guide cell area of the ship; Right: twin deck within cell area; assumed standing point of stevedore (between guardrail and opening) before the accident is marked by red symbol.

5.1.2. Terminal and ship interaction: When Wes Janine arrived in Riga on 19 February 2017, a cargo planner from the RUT came on board and passed information about the plan for cargo operations to the Master. There was no specific discussion about what safe working practices the RUT was expected to follow on board. The RUT cargo stevedores and charge hands were responsible for lashing and unlashng the containers, operating automatic twistlocks, and ensuring that locating cones for containers were fitted as required. Wes Janine deck watchkeepers carried copies of the cargo loading plan at Riga. In accordance with the statements from the crew, watchkeepers were performing periodical safety round on deck, primarily to verify that the cell guides inside the holds had not been damaged during the cargo operations. In accordance with the vessel's written instructions, there are not mentioned watchkeepers' particular responsibility to check, if containers loaded inside the holds were located and stacked correctly, neither if safety procedures of coastal personnel are being adhered properly. Witness statement from the ship mentions watchkeeper (hereinafter-*quote from a document is in italics*) "*AB who was monitoring cargo operation*" within the time period when accident occurred, but none written instructions were submitted to

investigation authorities about particular responsibilities of mentioned AB while being on watch.

5.1.3. Crane operator and Signaller interaction: Signaller, while executing normal loading operations, stood in guide cell area on tween deck, which is designed as set-forward athwartship gangway (in relation with the inner space of adjacent cargo hold) restricted by guardrail toward bow. Periodical exchange of information between designated Signaller and crane operator have being done between 02.00 -05.00 LT by radio. Crane operator was alarmed by stevedore's silence (not answering on radio and phone) around 05.00 LT. Crane has installed closed-circuit television camera: video recording during loading operations displays Signaller standing within guide cell area before 04:13:53 LT, when the stevedore is seen last time.



Fig.3. Snapshot of crane's integral CCTV. Stevedore (in fluorescent coloured jacket) is noticeable last time on the screen (marked by red arrow)

It is impossible to define precise time, when stevedore assumedly fell into floor opening; it is likely that he fell between 04.14 and 05.00 even though his body was not discovered until 06.00.

5.2. Human erroneous actions and omissions

5.2.1. In accordance with the post-mortem toxicology tests (1,21‰), diseased stevedore consumed alcohol before or/and during working session on board of ship, that likely had had an impact on psychomotor functions, alertness and judgement; it might be contributory factor of the accident.

5.2.2. In accordance with the statements from RUT, diseased stevedore was not using safety gear for working aloft, as prescribed by company's working

instructions for those particular conditions. It is the contributory factor of the accident.

5.3. Hazardous material involvement

NIL

5.4. Environmental impact

NIL

5.5. Equipment failures

NIL

5.6. External factors

Weather conditions had not impact on the event. CCTV of crane displays sufficient level of illumination of the site in time period of accident.

5.7. Contributing factors of the accident involving human performance, shipboard operations, shore management or regulatory procedures

5.7.1. Safety management of RUT: company has comprehensive SMS covering all aspects of cargo handling operations and, also alcohol consume. Safety instructions “DI-51” for stevedores *inter alia* defines: ...”*Para 1.2.1.7.5. It is allowed to move (walk) on board of the ship so far as guardrails are reachable (by hand) ”.....”Safety belt must be fastened as close as possible to the working place, or any other location where risk of fall is presented: i.e. locations without barriers (railings), damaged railings, more than 1 meter of height between two surfaces (deck or bridge), or any other risk of fall is presented... ”*

Specific RUT circular on “zero tolerance” policy on alcohol consumption in working environment is also distributed among workers in concise and clear manner.

Initial conclusion: Lack of regulatory procedures from the company is not the contributory factor of the accident.

Diseased stevedore (33 y. o.) had 1 year working experience in current position; he had undergone standard company’s basic training (completed on 12.05.2016),

specific working training (07.11.2016) and working performance evaluation (25.10.2016) . He had active medical certificate (from 13.07.2016).

Initial conclusion: Lack of competence (also formal certification) of the stevedore is not contributory factor of the accident.

5.7.2. Safety management of Wes Janine in relation with the accident: TAIIB has not in disposal Wes Janine's submitted direct written instructions of those three watchkeepers who were on board during the accident. So, for instance, in relation with the accident, crew have submitted statement about presence of a "*wachkeeper , who was performing safety round on deck*", however, there are no written vessel standards in particular: What route must be followed during this "safety round" by a crew member? What specifically he/she must control and verify? etc.. The same situation is with the second vessel AB watchkeeper who (quote) "...*was monitoring cargo operation*" (unquote) according to submitted vessel's information. TAIIB has not written instructions for executing such "monitoring".

The general policy of crew was "delegate responsibility" completely to RUT in matter of cargo handling operation. Walking in the guide cell area does not present an inordinate hazard. However, when the cargo loading operation is in progress and coastal personnel are involved, the same activity is potentially very hazardous. The risks of falling into an opening, also when the surface could be slippery from ice or water must be assessed by the ship's managers and practical control measures introduced to prevent accidents. Even primitive temporary barriers such as plywood sheet above lightening hole might help.

5.7.3. Ship shore interaction: Neither the RUT (also any other container terminal) nor Wes Janine crew and operators can take sole responsibility for the safety of cargo operations. The both parties have a shared interest in a safe and efficient cargo operation, and this can only be achieved by working closely together. Although detailed guidance exists for RUT personnel on the safe behaviour and the personal protective equipment that anyone involved in cargo work was expected to use, none of this information was conveyed to the crew on board of Wes Janine. Also, though wathckeeper of Wes Janine has warned stevedore verbally "*en passant*" about dangerous presence in cell guide area (around 03.00 LT before occurrence: perished stevedore just ignored the advice) the SMS on board the vessel either does not identify the risk of personnel walking on guide cell area, or such written identifications were not submitted to RUT personnel in a holistic manner. Without clear and concise controls, no-one should be permitted to walk in areas with floor-openings.

It is accepted that the container trade relies on fast turnaround times, but achieving the necessary level of co-operation need not be an extraordinary effort. There was time span of two hours between the approval of loading plan and factual commencing of work. It must be normal practice for RUT staff to visit the vessel in order to discuss expected cargo operations, and an additional discussion on safe working practices would not add significantly to the turnaround time. Such a discussion should focus on the behaviour expected of the terminal and crew and the demarcation of responsibilities. A typical discussion might include the following topics:

- **Agreeing areas** where crew and stevedores should not enter during cargo operations or to be only using personal protective equipment;
- **Clear demarcation** of crew and stevedores' duties along with the presence of unusual performance of stevedores or crew (i.e. dismissal of an individual from working site, visual intoxication with alcohol etc.);
- **Identifying the implications** of operational constraints (i.e. dangerous areas, such as guide cell area, lack of illumination, hatch covers that might need to be left open longer than normal etc.).
- **Stating the consequences of deviation** from agreed protocols of safe behaviour (i.e. interrupting crane movements, delaying cargo operations etc.)

All those elements better to be supported by means of written check lists.

6. Conclusions

6.1. Most likely, from his injuries and the position in which he was found, that stevedore died from falling into the cargo hold between bay 18 and 14, row 07, most probably at time between 04.14 and 05.00.

6.2. Without any witnesses to the accident, it is not possible to establish what stevedore was doing prior to the fall while standing in guide cell area. Reportedly conscientious in his duties, as well as according to port crane integrated CCTV records, he could have been engaged in a number of activities to monitor the cargo operation. In these circumstances, it would have been possible for him to have stepped into unguarded lightening hole and fallen (10 meters down) onto the bottom of cargo hold.

6.3. Stevedore was intoxicated by alcohol, thus breaching company's regulations and policy of "zero tolerance".

6.4. Stevedore had not used personal protective gear standing on the guide cell area's gangway, thus breaching company's safety rules.

6.5. To improve safe working practices, a brief discussion should be held between the ship's crew and container terminal staff prior to the commencement of cargo operations, in order to: identify the potential risks; agree the control measures necessary to mitigate these risks; define the responsibilities and expected behaviour of both parties; and understand the consequences of deviation from agreed protocols of safe behaviour.

6.6. Ship-owner of Wes Janine should introduce more detailed and specified "Shipboard manuals" for watchkeepers in port/ship under cargo operations in matter of safety and integrity of effort with ashore authorities attached with effective risk assessment cards.

6.7. **Direct Cause** of fatal accident (*The immediate events or conditions that caused the accident*): fall of the stevedore onto head which caused extensive cranial injuries.

6.8. **Contributing Cause** (s): (*An event or condition that collectively with other causes increases the likelihood of an accident but that individually did not cause the accident*):

- Most likely: undeliberate, negligent stepping of stevedore into lightening hole in floor of vessel's guide cell area and fall from height 10m meters onto bottom of cargo hold.
- Alcohol intoxication may have contributed to the accident as the factor of negative impact on stevedore psychomotor functions, alertness and judgment.
- Failure to follow RUT safety rules on performance during cargo operations (standing only in outreach of guardrails and use of personal protective gears) may have contributed to the accident.

6.9. **Contributing factors of the accident:** (*conditions or circumstances that existed and possibly influenced or affected the event*):

6.9.1. Inobservance of stevedore, also as the failure to follow the advice of vessel's watchkeeper "*this area is dangerous to be in*" given at 03.00 LT.

6.9.2. Insufficient persistence of vessel's watchkeeper to ensure stevedore to leave dangerous area.

6.9.3. Insufficient ship-terminal interaction in matters of cargo loading safety control measures.

6.9.4. Insufficient vessel's shipboard written instructions for watchkeepers in port/or when cargo operations are performed, as well as shipboard **risk assessment** for shore personnel.

7 SAFETY RECCOMENDATIONS

To ship owner:

RECCOMENDATION 7.-2017: in framework of Wes Janine and other vessels' SMS re-assess safety procedures and control measures for containers loading/unloading operations: additional risk assessment, including guide cell areas, putting physical barriers in dangerous areas, specified instructions for watchkeepers and standards of ship-shore interactions (see Para 5.7.3.)

To Riga Universal Terminal:

RECCOMENDATION 8.-2017: to introduce enforcement of company's "alcohol zero tolerance" policy: random or regular alcohol tests of working shifts before commencing the operations.

RECCOMENDATION 9.-2017: in framework of company's SMS to work out clear and holistic ship-terminal interaction standards (see Para 5.7.3.)

Riga , 15 august 2017.

Investigator in charge – Head of Marine Accident Investigation Department
A.Pavlovics

**Statement from company WESSELS Reederei GmbH & Co. KG
(owner of vessel Wes Janine)**

1) It is not the responsibility of our crew to accompany shore workers during their job on board. All stevedores working ashore and on board environment should have received enough training to avoid dangers or handle accordingly, which likely arise on board of a ship, especially those people who are involved into container operations and working aloft.

2) It is not the sole responsibility of the crew only to control the vessels safety and vessels's superstructure as the matter of preventing damages, scratches or unlawful penetrations from ashore. It is also part of responsibility of the watchkeeping crew to avoid dangerous situation.

Regarding accident on February 20 in Port of Riga:

1. There was enough illumination at the accident area; also stanchions with a safety line were helping to ensure safety. (see picture taken from crane para 5.1.3.) But if this will be ignored by stevedores and if also alcohol is involved and the diseased stevedore also ignore RUT working instructions for those particular conditions (see part 5.2.1 and 2), the vessel or our ISM system cannot take any responsibility and avoid such a terrible accidents.

2. Risk assessment will not help in this situation. Still an evaluation of the accident has taken place on board and in the office.

3. Company has active on-board working document: List of duties for Watch Officer: **”Deck Officer – In Port”** (*document “SBM - STANDING ORDERS DECK/ BRIDGE, 02 Watch Duties, 2.1.5 Deck Officer – In Port*) , where particular duty “Accidents are to be prevented” has being defined clearly.

In particular: there are lot of things the deck officer must consider during inspection of working environment and condition in order to prevent accidents. In our training manuals we can find procedures how to prevent accidents. Also every seaman receives different trainings ashore, such as:

1.Ensure that all means of access such as ladders and stairs are in safe condition, well lit, and unobstructed.

2.Warning notices are put in case access is in dangerous condition or removed for maintenance.

3.All gears/equipment stowed in the access area are properly secured.

4.The guard-rail are in good condition, secure, and in place.

5. All fixtures and fittings that cause potential hazards are suitably painted and marked
6. All portable ladders are properly secured and at safe angle.
7. The ship's working environment must be safe to enter and without any obstruction
8. All levels of the area must be adequately lit
9. The area should be well ventilated.
10. The area should be clear of all unwanted items, rubbish, combustible material, oil spill etc.
11. All unnecessary dangerous goods and substances are not left unnecessary in the area or stored dangerously
12. All loose tools, stores and similar items are kept at dedicated places and secured properly
13. All required safety signs are clearly displayed
14. Work-to-permit is taken where ever required
15. All crew members must wear personal protective clothing and equipment
16. All protective clothing and equipment are in good condition and used properly
17. Ensure that proper steps are being taken to rectify defective equipment/machinery system
18. Adequate supervision is provided for new or inexperienced crew.

The Master, being the overall in-charge of everything on board, is responsible for the functioning of the vessel in every aspect. Thus, it is obvious for him to promulgate his requirements with respect to the safety of navigation and other operations carried out on the ship. On the basis of risk assessments and investigations, the master makes recommendations and advises to the DP of new potential hazards and means of preventing incidents on board ship. In case necessary new procedures will be developed.

Further the standing orders are a set of guidelines to ensure safe ship navigation and operations whether at sea or at port. The master puts special requirements into writing in the Master's "**Standing and Night Orders**". Standing orders are to be followed at all times by the officer on duty and are duly signed by every officer on board, making them liable to adhere to the orders. That is to say that the standing orders are in-force and applicable at all times the ship is at sea, at port or at anchor. Such instructions can be included:

"During loading or unloading cargo, you as OOW should pay strict attention to the followings: A) Do not leave the deck unattended (except going to CCR for cargo checking reason) to ensure safety of the vessel, crews and cargo. B) The Duty Officer and rating while performing the jobs during cargo operation are compulsory to wear safety gear."

When the ship is alongside and cargo operations are underway, the risks of accidents on deck are more than at sea. The safety of the ship's crew and shore stevedores are to be ensured and any unsafe working practice should be noticed and stopped. This safety is to be ensured with the personal judgement and experience of the officer.