Marine Safety Investigation Unit

Transport Malta

SAFETY INVESTIGATION REPORT

201912/048 REPORT NO.: 23/2020 December 2020

MV *LA SOLOGNAIS*

Serious injury to a crew member in the grey water tank in position 07° 43.5' N 076° 08.0' E, 26 December 2019

SUMMARY

In the morning of 26 December 2019, whilst *La Solognais* was at sea, the second engineer and the wiper were assigned to clean and inspect the vessel's grey water tank.

The atmosphere inside the tank was measured, following which, the tank was washed. The wiper entered the tank and, on reaching its bottom, fell unconscious.

He was immediately rescued by the crew members, and first aid was administered. About two hours later, the vessel was diverted to the nearest port where the wiper was evacuated and transferred to a hospital ashore.

Tests at the hospital revealed that the wiper had suffered from the effects of possible hydrogen sulphide inhalation.

The MSIU has issued one recommendation to the Company and the flag State Administration to ensure correct entries in work permits and to enhance awareness on the hazards associated with grey water tanks.

MV *La Solognais*

FACTUAL INFORMATION

Vessel

La Solognais (Figure 1) was a 24,725 gt bulk carrier, owned by LDAP SAS, and managed by Abacus Ship Management Ltd., Hong Kong. The vessel was built in 2015, in Tianjin Xingang Shipyard and was classed with Bureau Veritas (BV).

The vessel had a length overall of 179.99 m, a moulded breadth of 30.00 m, and a moulded depth of 15.00 m. She had a summer draught of 10.70 m, which corresponded to a summer deadweight of 40,841 metric tonnes (mt). At the time of the occurrence, she was drawing a maximum draught of 10.49 m.

Propulsive power was provided by a five-cylinder, two-stroke, slow speed, MAN YMD 5S50ME-B9.2 marine diesel engine, which produced 6,050 kW of power at 99 rpm. This drove a fixed-pitch propeller, enabling *La Solognais* to reach an estimated speed of 14 knots.

Grey water tank

The grey water[1] tank on board *La Solognais* was fitted in the engine-room, between frame nos. 17 and 20 (Figures 2 and 3). This tank's bulkheads separated it from the main engine space, a heavy fuel oil (HFO) tank, a low-sulphur heavy fuel oil (LSHFO) tank and the black water[2] tank.

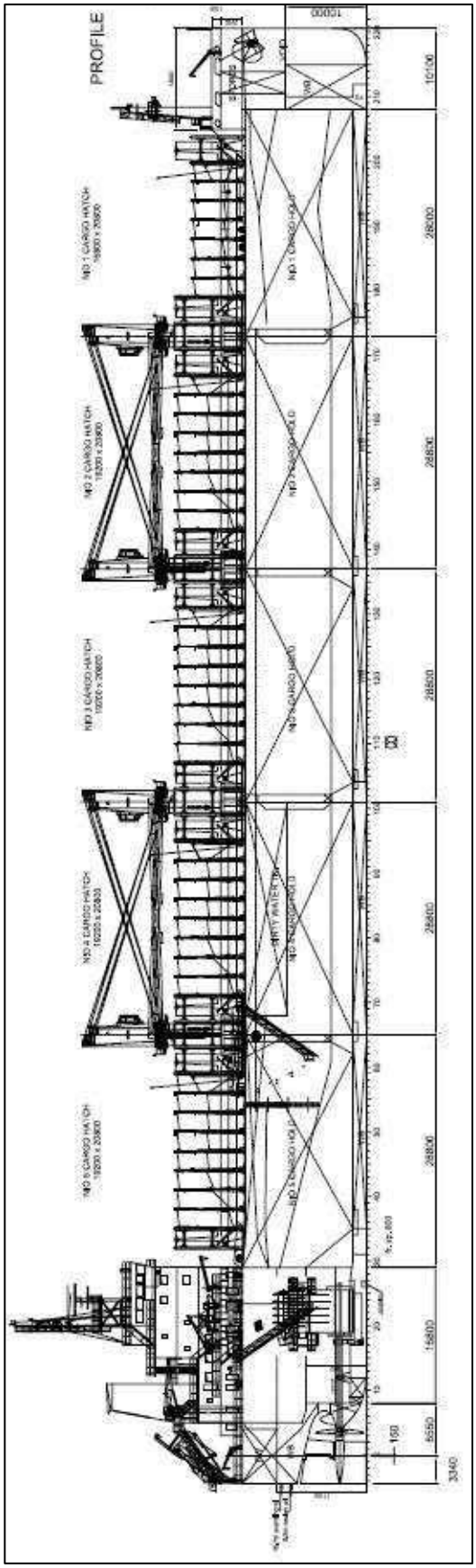

Figure 1: Extract of the General Arrangement Plan – *La Solognais* (Scale – 1:300)

[1] IMO Resolution MEPC.219(63) defines grey water as drainage from dishwater, shower, laundry, bath and wash basin drains. Grey water does not include drainage from toilets, urinals, hospital spaces and cargo spaces.

[2] Black water is a common, but unofficial term used to describe sewage – which is defined in Annex IV of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocols of 1978 and 1997 (MARPOL), as amended.

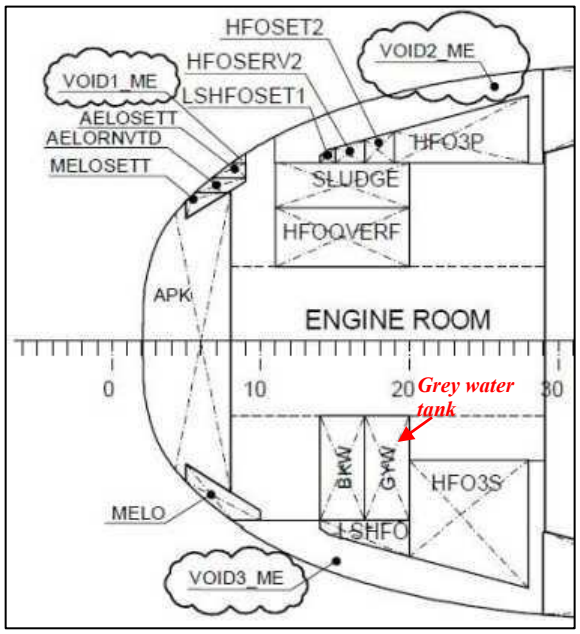

Figure 2: Location of the grey water tank – Bird's eye view

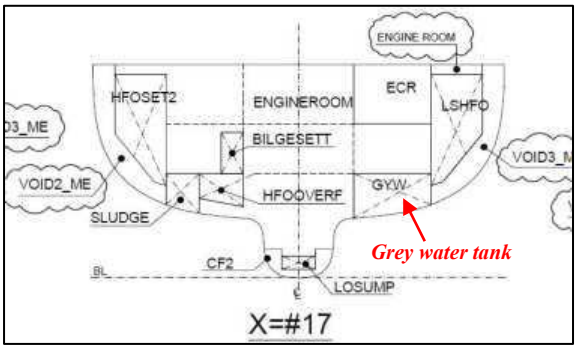

Figure 3: Cross-section of the grey water tank, at frame no. 17 (seen from aft)

The tank had a volume of 42.80 m^3, and a maximum depth of about 3.10 m. The depth of the tank in way of its access ladder was 3.00 m. It was fitted with only one access manhole, at the top of the tank, which corresponded to the bottom platform of the engine-room. The tank's air vent opening was located on the vessel's funnel deck, at a height of 26.08 m from the top of the tank.

All drains from the galley, mess rooms, laundries, sinks and shower spaces of the crew cabins and changing rooms, and the hospital's sink and bathtub led into the grey water tank. Reportedly, this tank was last cleaned on 03 November 2018.

Crew

The vessel's Minimum Safe Manning Certificate stipulated a crew of 14. At the time of the accident, she was manned by 20 crew members, all of whom were nationals of the Philippines.

The wiper was 30 years old. He had five years of seagoing experience, one of which in the rank of a wiper. He held basic qualifications in accordance with Chapter VI of the STCW[3]. Certificates were issued by the Philippines. He had joined *La Solognais* on 11 November 2019, from the port of Taicang, China and was not assigned any watchkeeping duties on board. Shipboard records indicated that he was familiarized with enclosed space entry procedures on the day of joining.

The chief engineer was 55 years old. He had 22 years of seagoing experience, 13 of which as a chief engineer with STCW III/2 qualifications. His certificate was issued by the Philippines, in 2006. He had joined *La Solognais* on 21 June 2019, from the port of Singapore. Records indicated that he was familiarized with enclosed space entry procedures on 29 July 2019.

The second engineer was 42 years old. He had 22 years of seagoing experience, eight months of which as a second engineer with STCW III/2 qualifications. His certificate was issued by the Philippines, in 2018. He had joined *La Solognais* on 29 July 2019, from Port Kembla, Australia.

Environment

Around the time of the occurrence, the weather was reported to be clear, with a visibility of about 25 nautical miles (nm).

[3] International Convention on Standards of Training, Certification, Watchkeeping for Seafarers, 1978 (as amended).

The wind was reportedly blowing from the South Southeast, at force 5 on the Beaufort scale. Rough seas, with North Northeasterly swell, measuring 1.50 m in height, were also reported. The air and sea temperatures were reported to have been 34 and 30 , respectively.

The temperature inside the engine-room was recorded at around 35 .

Narrative[4]

On 20 December 2019, *La Solognais* departed from Singapore with a cargo of steel products, bound for Haifa, Israel.

In the morning of 26 December, the vessel was approximately 200 nm South of the Indian coast. At around 0745, the second engineer conducted a toolbox meeting with all engine-room crew members. During this meeting, tasks were allocated to each crew member, and all potential associated hazards were discussed.

As part of the vessel's planned maintenance schedule (PMS), the second engineer decided to have the vessel's grey water tank cleaned and inspected, which were overdue. He assigned this task to himself and the wiper.

At around 0800, the manhole of the grey water tank was opened, and ventilation was commenced via a portable blower and duct (Figures 4 and 5).

Thereafter, the second engineer and the wiper prepared the equipment required for the cleaning and inspection, including a self-compressed breathing apparatus (SCBA). At 1000, the ventilation was stopped, and the tank's atmosphere was measured.

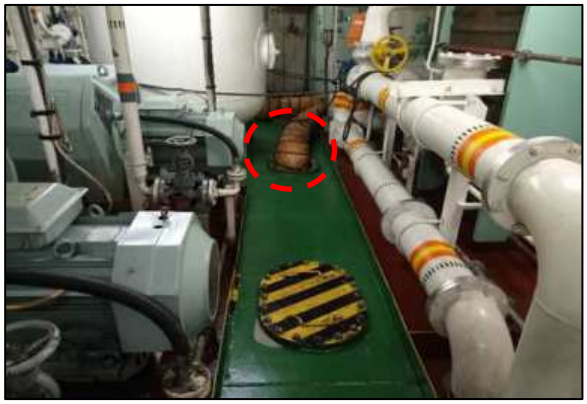

Figure 4: Access manhole of the grey water tank with the ventilation duct in place

Figure 5: Portable blower used for ventilation

The measurements were taken using the vessel's portable multi-gas detector, and were recorded as follows:

- Oxygen: 20.9%;
- Hydrocarbon: 0% LFL; and
- Toxic gases: 0%.

At the same time, an enclosed space entry permit was completed and signed by the chief engineer.

At around 1030, the crew members started washing the grey water tank with sea water, using a fire hose, while positioned above the manhole. At around 1040, while the washing was in progress, the chief engineer left the site to check and calculate the quantity of heavy fuel oil (HFO) bunkers on board.

[4] Unless specified otherwise, all times mentioned in this report are in local time (UTC +5).

The washing from above was completed at around 1051, following which, at 1055, the wiper entered the grey water tank, wearing coveralls, a hard hat with a head light, and rubber boots (Figure 6), with the intention of washing the internals of the tank.

Figure 6: PPE worn by the injured wiper (the safety shoes were worn while he was outside the tank)

On reaching the bottom, the second engineer heard the wiper complain that it was getting difficult for him to breathe, so he immediately instructed the wiper to come out of the tank. At around 1100, while the wiper was climbing up the ladder, the second engineer observed the wiper losing his grip, and fall from a height of about 1.0 m into the tank.

The second engineer immediately notified the bridge via telephone following which, the navigational officer of the watch (OOW) relayed this information to the master and the chief officer, who were both on the bridge at that time.

The master raised the emergency alarm and followed it with an announcement on the vessel's public address system, requesting all crew members to muster for a rescue operation from an enclosed space.

In the meantime, the second engineer donned the SCBA and entered the grey water tank to check on the wiper. Finding the wiper unconscious, he waited on site for additional help to arrive.

Post-accident events

At around 1103, the rescue team led by the chief officer arrived on scene. The chief officer noticed the second engineer at the bottom of the ladder in the tank, supporting the unconscious wiper's head. He immediately instructed a member of the rescue team to don another SCBA and enter the tank to assist the second engineer in the rescue operation.

Once the wiper was extracted out of the tank, the chief officer checked and found a pulse and observed that the wiper was having trouble to breath. He also observed that the wiper had suffered an injury at the top left side of his forehead. Oxygen was administered using a portable oxygen resuscitator, and the injured wiper was then transferred to the engine control room (ECR). Other crew members were instructed to prepare the vessel's hospital.

After transferring the injured wiper to the ECR, the crew members checked his vital signs, immobilized his head, cleaned the wound on his head, and removed his coveralls to check for further injuries. At around 1110, the chief officer notified the master about the injured wiper's conditions and informed him that first aid treatment was being administered to the injured wiper in the ECR. Thereafter, the master notified the Company about the accident. He also tried to establish contact with the *Centro Internazionale Radio Medico* (CIRM), Italy; however, this was unsuccessful.

A few minutes later, the injured wiper exhibited signs of recovery. At around 1135, the injured wiper was transferred to the ship's hospital, where monitoring of his condition and first aid treatment was continued. At around 1240, the master managed to establish contact with the CIRM, who advised him to continue with the administration of oxygen, provide drinking water, and to administer Ibuprofen (440 mg) every six hours.

At around 1320, following the Company's advice, the master diverted the vessel towards the port of Cochin, India. At around 2345, whilst the vessel was within the port limits of Cochin, shore doctors boarded the vessel to check on the condition of the injured wiper. The injured wiper was evacuated by a tugboat at about midnight and transferred to a hospital for further treatment.

Findings at the hospital

On arrival at the hospital, the injured wiper was observed to have been in a state of a coma. He was transferred to the emergency room and intubated, as his scores on the Glasgow coma scale (GCS)[5] were observed to be poor.

In the meantime, on 28 December 2019, the vessel's crew members proceeded with the cleaning and inspection of the grey water tank. The initial gas measurements taken during the task indicated a concentration of 3 ppm hydrogen sulphide (H_2S) in the grey water tank. About 45 minutes later, another check revealed a higher concentration of H_2S (>5 ppm). After the tank was washed on the same day, a further check revealed an H_2S concentration, exceeding 10 ppm. The information that H_2S was present in the grey water tank was conveyed by the vessel to the hospital on 02 January 2020.

Based on this information, the hospital suspected that the injured wiper probably suffered from toxic encephalopathy, caused by toxic gas exposure.

Eventually, on 24 January, the injured wiper was discharged from the hospital and repatriated back to his home country with a medical escort, where he was to undergo further medical treatment. The medical report of 20 May indicated that his condition had improved and that he had resumed daily activities, although he was recommended to continue with the prescribed medication.

The injury on his head was noted to be superficial and was stated to have been probably caused after falling in the tank, following inhalation of a toxic gas.

Toxic Encephalopathy[6]

Toxic encephalopathy is the term used to indicate brain dysfunction caused by toxic exposure. In most toxic encephalopathies' cases, the level and duration of exposure determine the severity of the symptoms and the likelihood of irreversible symptoms, respectively.

Of the various clinical syndromes of toxic encephalopathy, H_2S is one of the causative agents for acute diffuse toxic encephalopathy.

Company's procedures for entry into enclosed spaces

The Company's Safety Management Manual (SMM) contained procedures to be followed for the preparation, entry and exit from enclosed spaces. This section of the SMM identified all tanks, holds, void spaces, battery lockers, *etc.* as enclosed spaces.

Furthermore, the introduction to this section indicated that the disturbance of rust, scale or sludge residues of cargoes of animal, vegetable or mineral origin or of water that could be covering such substances may lead to the release of toxic or flammable gases.

Amongst other items, these procedures required for the atmosphere of the enclosed space to be tested after the tank is cleaned, ventilated and prepared for entry. It also

[5] The GCS is a common scoring system used to describe the level of consciousness of a person, following a traumatic brain injury. It is summation of scores for eye verbal and motor responses.

[6] Kim, Y., & Kim, J. W. (2012). Toxic Encephalopathy. *Safety & Health at Work, 3*(4), 243-256. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3521923/

always required the persons entering an enclosed space to wear a safety harness.

Shipboard records indicated that both the second engineer and the wiper had been familiarized with the enclosed space entry procedures.

Risk assessment and enclosed space entry permit

During the toolbox meeting, a risk assessment for entry into the grey water tank was conducted. The risks associated with all identified hazards were estimated to be either low or very low.

The enclosed space entry permit required 'pre-entry' tests of the atmosphere to be recorded. These tests were recorded to have been carried out at 1000, before the tank was washed with sea water. The time of entry into the tank was recorded as 1030, on the permit.

The permit also required that all personnel entering the enclosed space had to be provided with a rescue harnesses and lifelines, where practicable. This item was checked, indicating that the equipment had been provided.

The permit determined that the responsible person for the entry into the enclosed space, as well as the attendant, was the chief engineer. The persons entering the space were listed as the second engineer and the injured wiper. Against each of the entries, except for the entry against the wiper's name, the dates and the times were recorded as 26 December 2019 and 1000, respectively. The date and time were not recorded against the wiper's name.

Portable gas detectors

The vessel carried two portable multi-gas detectors on board (Figure 7A and 7B). Both detectors could measure the percentage of oxygen, hydrocarbon (in percentage of the LFL), carbon monoxide and hydrogen sulphide (both in parts per million (ppm)).

Figure 7: Multi-gas detectors on board (representative photographs)

The MSIU was informed that the gas detector used on the day of the accident had been last calibrated in December 2019[7]. Reportedly, a fresh air calibration was conducted on this gas detector, prior to measuring the gases in the grey water tank. A two-metre long gas sampling tube was used to measure the gases during the pre-entry tests.

[7] The MSIU was informed that one of the gas detectors was calibrated by the chief officer on 04 December and the other by a shore service Company on 11 December. The MSIU could not determine which of the two gas detectors was used on the day of the accident.

Records of hours of work / rest
The work / rest hour records of the wiper indicated that his period of rest spanned over 21 consecutive hours, prior to the commencement of work at 0700 on 26 December.

The records also indicated that his work and rest periods met the relevant requirements of the Maritime Labour Convention, 2006, as amended (MLC, 2006).

Consumption of drugs / alcohol
Following the accident, no drug / alcohol tests were carried on the crew members, however, tests were conducted on the wiper after he was admitted into the hospital.

ANALYSIS

Aim
The purpose of a marine safety investigation is to determine the circumstances and safety factors of the accident as a basis for making recommendations, and to prevent further marine casualties or incidents from occurring in the future.

Cause of the toxic encephalopathy
The MRI findings at the hospital indicated that the injured wiper was suspected to have suffered from encephalitis, which was probably caused by exposure to H_2S.

The safety investigation believes that as soon as the injured wiper had entered the grey water tank, he started to experience the effects of exposure to H_2S - severe enough to result in a loss of consciousness and acute diffuse toxic encephalopathy.

Cause of the head injury
The hospital report confirmed that the injury was superficial and was probably sustained after the injured wiper lost consciousness and fell inside the tank.

It is highly likely that the injury was sustained when the injured wiper struck his head either against the ladder or against the stiffeners in the grey water tank (Figure 8).

Figure 8: Ladder and fittings in the grey water tank, against which the wiper may have struck his head

Considering the injury on the wiper's forehead, the safety investigation concluded that the chin strap of the wiper's helmet had not been properly secured when he entered the grey water tank. Consequently, the helmet slipped off his head at some point during the fall.

H_2S in the grey water tank
As mentioned earlier, the drains from the galley led into the grey water tank. Wastewater from the galley and mess rooms contains high concentrations of organic matter and bacteria, eventually ending up in the grey water tank. As the contents of this tank may not be frequently pumped out, especially when a vessel is alongside, the chances of decomposition of the organic matter may increase, while the bacteria could facilitate and speed up decomposition.

Since oxygen is consumed during the decomposition of organic matter, the oxygen concentration in the grey water tank would decrease and create an anaerobic environment within the enclosed space. These conditions may lead to an increase in the formation of H_2S inside the grey water tank[8].

An investigation report on a fatal accident on board a passenger vessel, published by the Bahamas Maritime Authority in 2009, had highlighted the generation of H_2S from food waste, which had accidently accumulated in one of the vessel's shaft tunnels[9].

Furthermore, chemicals from cleaning agents and disinfectants used on board can also react to form H_2S.

At first instance, the contents of a grey water tank, which contains common day-to-day wastes, would not seem to pose any hazards; especially when compared to, say, a fuel oil tank, where the hazards would generally be starkly apparent. The possibility of the presence of H_2S in grey water tanks may not be commonly known by a vessel's crew members. It is highly likely that this was also the case on board *La Solognais*.

Gas measurements of the grey water tank

Gas measurements of the grey water tank, taken on 28 December confirmed the presence of a high concentration of H_2S inside the tank. It is highly likely that the build-up of a high concentration of H_2S was due to the decomposition of organic matter contained within that tank, as well as chemical reactions between various substances that drained into it.

While the enclosed space entry permit indicated that the grey water tank's atmosphere was safe for entry, the gas measurements were taken before the tank was washed from above, using a fire hose. It is highly likely that the jet of water disturbed pockets of H_2S, which may have gone undetected at the time of measuring the tank's atmosphere.

This disturbance would likely have caused H_2S to spread into the small grey water tank and, since H_2S is heavier than air, the gas would have gradually settled at the lower levels of the tank. Therefore, it is highly likely that the wiper was overcome by H_2S gas, as soon as he would have reached the bottom of the tank.

Ventilation of the grey water tank

Reportedly, on the day of the occurrence, the grey water tank was ventilated for about two hours, using a portable blower. During the safety investigation, it was revealed that the blower was supplying air into the grey water tank.

Considering that the grey water tank was fitted with only one access manhole and that its air vent extended up to the funnel, the safety investigation concluded that using the blower in 'supply' mode would not have generated an effective ventilation of the tank. This hypothesis was reached while considering the size of the portable ventilation duct in relation to the size of the manhole (Figure 9). It is highly likely that the supplied air would have escaped from

[8] Baltic Marine Environment Protection Commission. (2019). *A technical guidance for the handling of wastewater in ports of the Baltic Sea special area under MARPOL Annex IV*. Retrieved from https://helcom.fi/media/publications/Technical-guidance-for-the-handling-of-wastewater-in-ports.pdf

[9] The Bahamas Maritime Authority. (2009). *'Monarch of the Seas'. Report of the investigation into hazardous material release during pipe work renewal at Los Angeles, USA on 2nd September 2005*. Retrieved from https://www.bahamasmaritime.com/wp-content/uploads/2015/08/Monarch-of-the-Seas-2-Sep-05.pdf

around the manhole perimeter rather than the from the air vent at the funnel (fitted 26.08 m above the grey water tank).

Nonetheless, the gas measurements taken after the ventilation was stopped, indicated that the tank was free of gases, which would have given the crew a sense of security and no reason why the tank should not be accessed.

Figure 9: Ventilation duct passing through the grey water tank manhole

Fatigue

As mentioned earlier in this safety investigation report, the injured wiper's work / rest hours were recorded and confirmed compliant with the relevant international requirements. However, the safety investigation was unable to verify the quality of his rest periods.

Nonetheless, since the behaviour of the crew members was not indicative of being affected by fatigue, fatigue was not considered a contributory factor to this accident.

Consumption of drugs / alcohol

As indicated elsewhere in this safety investigation report, drug and alcohol tests were not conducted on the crew members, following the accident. However, the behaviour of the crew members did not suggest that any of them were under the influence of drugs and/or alcohol.

Furthermore, tests conducted on the wiper, at the hospital, did not reveal the presence of any drugs and / or alcohol. Therefore, the consumption of drugs and / or alcohol was not considered to be a contributing factor to this accident.

Preparation for the task

The aspect of disturbance of residues leading to the release of toxic gases was highlighted in the SMM's section on enclosed space entry. Furthermore, this section, as well as the enclosed space entry permit, required the crew members to measure the atmosphere of the enclosed space after cleaning.

The chief engineer, who was the attendant for this task, left the site while the tank was being washed from the outside. The safety investigation was of the view that the crew members had viewed this task as a minor one which would not justify the amount of time required to prepare for and spend on the task by strictly complying with each and every item listed in the Company's procedures[10].

Other findings

Although not directly related to the cause of the accident, it was determined that the injured wiper was not wearing a safety harness, as required by the Company's procedures. In this case, while wearing a safety harness would not have prevented the wiper from falling down a height of one metre in the tank, it could have facilitated an even quicker rescue operation. However, it is highly likely that in view of the size and depth of the tank, the risks associated with not wearing one must have been perceived as limited and hence accepted by the crew members.

Review of the enclosed space entry permit revealed several discrepancies, including the enclosed space entry time, missing times and signatures, and inaccurate entries.

[10] This matter will be addressed in some more detail further below.

Furthermore, a review of the enclosed space entry permit completed on 03 November 2018 for the previous entry into the grey water tank, also revealed several discrepancies[11].

All the crew members involved in this task were aware of the safety requirements and had all been exposed to safety management system procedures. However, research in risk perception and rule violations refers to front liners' "strong sense of self-reliance in relation to safety," manifested in what is traditionally labelled as safety shortcuts[12]. The research study explained how experienced front liners may view certain requirements as unnecessary and unwarranted measures. However, such an approach would be particularly problematic in situations where the risks would have been unknown.

This is not to say that crew members would have been motivated to blatantly violate safety rules; in fact, they would have been motivated to get the job done. Such decisions would not have been taken in a vacuum; rather influenced by the perceived complexity of the task in hand (in this case, the complexity would have been limited as access to a small, shallow, and the perception of a well ventilated tank). Moreover, these decisions may also be influenced by the belief that experiences (and skills) would suffice, making established work practices redundant.

Crew members' actions

The severity and the likelihood of irreversible symptoms of toxic encephalopathy mainly depend on the level and duration of the exposure. While the level of exposure could not be precisely determined by the on-board gas detectors, the safety investigation noted that the response by the crew members for the rescue operation was quick. This minimised the duration for which the injured wiper was left exposed to H_2S. The crew members were thereby successful in reducing the likelihood of irreversible harm, as well as possible fatality of the injured wiper.

CONCLUSIONS

1. The injured wiper was diagnosed to have suffered from possible acute diffuse toxic encephalopathy caused by inhalation of a high concentration of H_2S.
2. The injured wiper lost consciousness and fell inside the grey water tank, soon after he went inside.
3. The chin strap of the injured wiper's helmet may have not been properly secured.
4. Waste and effluents collecting inside the grey water tank may be a cause for the presence of high concentrations of H_2S gas.
5. It is highly likely that the presence of H_2S in the grey water tank may have not been known to the crew members.
6. The measurements of gases inside the grey water tank after two hours of ventilation, suggested that the tank was safe for entry.
7. The atmosphere inside the grey water tank had not been remeasured, following the washing with sea water.
8. Although the wiper was not wearing a safety harness, the enclosed space entry permit indicated that he was wearing one.

[11] The entry and exit times from the space were recorded as 0830 and 1130, respectively. The space was secured at 1140. One of the crew members, who entered the space, had signed the permit at 1300.

[12] Iszatt-White, M. (2007). Catching them at it: an ethnography of rule violation. *Ethnography, 8*(4), 445-465.

9. There were several discrepancies in the entries of the enclosed space entry permit and the execution of the task.
10. The crew members responded quickly to the emergency, minimizing the harmful consequences on the wiper's health.

SAFETY ACTIONS TAKEN DURING THE COURSE OF THE SAFETY INVESTIGATION[13]

Following the accident, the Company:

1. immediately circulated its initial report within its fleet and reminded all vessels to strictly comply with the procedures relating to enclosed space entry;
2. issued a Fleet Notice, instructing all masters within its fleet to seek the Company's approval prior to entry into any enclosed space;
3. designated the chief officer as the sole person responsible to measure the atmosphere of an enclosed space, irrespective of whether the space was on deck or in the engine-room;
4. promulgated a poster and questionnaire amongst its fleet, designed to improve crew training on the procedures and risk awareness for safe entry into enclosed spaces.

RECOMMENDATIONS

The Company is recommended to:

23/2020_R1 issue a Fleet Notice, highlighting the importance of accurate recording of data on its permits to work.

The flag State Administration is recommended to:

23/2020_R2 issue an Information Notice to emphasize the hazards that may be associated with grey water tanks and the presence of H_2S gas.

[13] **Safety actions and recommendations shall not create a presumption of blame and / or liability.**

SHIP PARTICULARS

Vessel Name:	MV *La Solognais*
Flag:	Malta
Classification Society:	Bureau Veritas
IMO Number:	9733258
Type:	Bulk carrier
Registered Owner:	LDAP SAS
Managers:	Abacus Ship Management Ltd., Hong Kong
Construction:	Steel
Length Overall:	179.99 m
Registered Length:	176.65 m
Gross Tonnage:	24,725
Minimum Safe Manning:	14
Authorised Cargo:	Dry cargo in bulk

VOYAGE PARTICULARS

Port of Departure:	Singapore
Port of Arrival:	Haifa, Israel
Type of Voyage:	International
Cargo Information:	Steel products – 33,404 mt
Manning:	20

MARINE OCCURRENCE INFORMATION

Date and Time:	26 December 2019 – 1100 (LT)
Classification of Occurrence:	Serious Marine Casualty
Location of Occurrence:	07° 43.5’ N 076° 08.0’ E
Place on Board	Cargo and tank areas – Tanks – Other tanks
Injuries / Fatalities:	One serious injury
Damage / Environmental Impact:	None
Ship Operation:	In passage; Cleaning/washing
Voyage Segment:	Transit
External & Internal Environment:	Clear weather; visibility: 25 nm; Wind: SSE Force 5; rough seas; swell: NNE x 1.5 m. Temperatures: air: 34 °C; sea: 30 °C.
Persons on board:	20