Panama Maritime Authority

Directorate General of Merchant Marine

Marine Accident investigation Department

REPORT: M.V. PINE 5” R- 037-2015- DIAM

IMO: No. 9438391

Date: 12th, 2015

INVESTIGATION REPORT

M.V. PINE 5"

IMO No. 9438391

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This Casualty Investigation is carried out on behalf of the Panamanian Maritime Authority, of the Panamanian Vessel "M.V. PINE 5", on the 10th – 11th of July 2015, when the vessel was safely laying starboard side alongside, at berth no. 16, City docks at the port of Houston, in Texas, to discharge a part cargo of project cargo.

The Panamanian registered, Ocean Going, Multi Purpose Cargo Ship "M.V. PINE 5", ex "SILVERFJORD", IMO No. 9438391, on Voyage No. 5406, 182.87 meters in Length, 28.40 meters in Breadth, Summer draft 10.919 meters, having 5 Hatches / Holds with Tween Decks, 5 Electro Hydraulic Deck Cranes, GRT 22,998, NRT 12,320, Deadweight 34,018, Diesel Main Engines, with Fixed pitch, Single Screw, Semi Balance Rudder, Official No.41635 - PEXT - 4, Call Sign HPCV, owned by " PINE 5 Shipping Inc., Marshall Islands, managed & operated by "Wallem Shipmanagement Ltd.", Hongkong, registered with Classification Society "Lloyd's Register"- (LR) having Classification Characters ✠100 A1, Strengthened for Heavy Cargoes, Container Cargoes on Tween Deck, and all Upper deck and all Hatch Covers, *IWS, LI, ✠LMC, UMS, Lloyd's Classification Number 9438391, assigned club BritanniaSteam Ship Insurance - P & I Club, built at Nantong Yahua Shipbuilding Co., Ltd., China, delivered on 27th May 2011, Hull No. NYHS200725, while alongside in the port of Bilbao, Spain, at about 1500 hrs. (LT) on 12th June 2015, had an incident where the deck cadet fell down from No. 5 tween deck to the lower hold, a height of about 8.80 metres and sustained serious head injuries.

*The Classification Character ✠100 A1, *IWS, LI and ✠LMC, UMS – are assigned when:-*

✠100 A1: ✠*This distinguishing mark denotes that the ship was constructed under the Society's Special Survey in compliance with the Society's Rules.*
100 *Character figure assigned to ships considered suitable for sea-going service.*
A *Character letter assigned to ships which have been constructed or accepted into class in accordance with the Society's Rules and Regulations and which are maintained in good and efficient condition.*
1 *The character figure is assigned to:*
(a) Ships having on board, in good and efficient condition, anchoring and/or mooring equipment in accordance with the Rules.
(b) Ships classed for special service, for which no specific anchoring and mooring Rules have been published having on board, in good and efficient condition, anchoring and/or mooring equipment considered suitable and sufficient by the Society for the particular service.

*IWS *Ship arranged for In Water Survey*

LI *The class notation LI is assigned where the entry "Loading Instrument" appears in the Hull Memoranda. A loading instrument approved for the calculation of Longitudinal Strength, bending moments and shear forces may also be accepted.*

✠LMC, UMS *Notation assigned when the propelling and essential auxiliary machinery has been constructed, installed and tested under LR's Special Survey and in accordance with the requirements of the Rules*

UMS *Notation assigned when essential machinery of the ship can be operated by remote and/or automatic control equipment with the machinery spaces left unattended.*

At the time of the incident the "M.V. PINE 5", had on board a compliment of 22 including the Master. The Ship's compliment consisted of 1 Ukrainian (i.e. the cadet), 2 Bangladeshi, 2 Russian, 2 Srilankan and 15 Indians including the Master, an Indian.

The vessel had arrived Bilbao, from Brake in Germany where she had loaded 1722 M/ts of steel slabs in No 2 hatch in the lower hold and tween deck. At Bilbao the vessel was to load at two berths, at the first berth she loaded about 1300 M/ts, being part cargo of Nacelles (i.e. Motor; Generator; Wind mills) in hatches nos 1, 4 & 5 lower holds along with Noses and Hubs in no 1 tween deck and in the forward port of No. 5 tween deck. She was then shifted to the second berth i.e AZ-2, was all fast at 2352 hrs on 10th June'15 where also she was to load project cargo being Wind Mills in parts i.e. Blades, Motors, Shafts etc.

On the day and at the time of the incident she had on board a total of about 3000 M/Ts of cargo, distributed in various hatches and had on board fuel H.O. 871.00 M/Ts; D.O. 163.00 M/Ts, Fresh Water 115 M/Ts, Ballast 9500 M/Ts. The weather conditions at that time was overcast sky, Lt airs, temperature 20ºC (i.e.68ºF), barometer pressure 1015 hPa, humidity 75%, good visibility, sunrise was at 0632 Hrs and sunset was suppose to be at 2153 hrs (L/T).

As a consequence of the casualty the cadet 21 years of age, unmarried male, Ukrainian national, about 5'10" in height, weighing about 75 – 80 Kgs, who had joined the vessel at Dunkirk in France, on 31st May 2015, sustained serious head injuries and went into coma and hospitalized.

There was no damage to the vessel, the water tight integrity of the vessels was intact and not jeopardized, there was no pollution as a result of this incident nor any damage to any property reported.

Soon after the accident the Master informed the agent, ship mangers, fleet personnel department, DPA, P&I club and Panama Maritime Authority. The agent arranged emergency medical aid and ship staff along with stevedores assisted in bringing the cadet out from the lower hold, first aid was administered and he was taken to the Hospital.

Abbreviations used in the context of this report:

A.B.	Able Body Seaman
ARPA:	Automatic Radar Plotting Aid
ASI:	Annual Safety Inspection
B.A.:	British Admiralty (with reference to Navigation Charts)
CSO:	Company Security Officer
D.O.:	Diesel Oil
D.O.C.:	Document of Compliance
DPA:	Designated Person Ashore
ECDIS:	Electronic Chart Display Information System
EOSP:	End of Sea Passage
ETA:	Expected Time of Arrival
F.O.:	Fuel Oil
FOTK:	Fuel Oil Tank
FWE:	Finished With Engines
ETA:	Estimated Time of Arrival
GPS:	Global Positioning System
H.O.:	Heavy Oil
IMO:	International Maritime Organization
ISM:	International Safety Management
Kw:	Kilo Watts
LNM:	Local Notice to Mariners
L.R.:	Lloyd's Register
LT:	Local Time

(All times mentioned in the context of this report are in Local Time)

MCA:	Maritime and Coastguard Agency
Mb:	Millibars (Units for Measurement of Air Pressure)
MDO:	Marine Diesel Oil
MMSI:	Maritime Mobile Service Identity
NM:	Notices to Mariners
Nm:	Nautical Miles
O.S.:	Ordinary Seaman
P.A.:	Public Address System
RO:	Recognized Organization
R.O.B.:	Remaining On Board
RPM:	Revolutions Per Minutes
S.A.R.T.:	Search and Rescue Transponder

SOLAS:	Safety Of Life At Sea
STCW:	Standards Of Training, Certification and Watch keeping
SVDR:	Simplified Voyage Data Recorder
UMS:	Unattended Machinery Space
USCG:	United States Coast Guard
WBTK:	Water Ballast Tank
VDR:	Voyage Data Recorder
VHF:	Very High Frequency
VSL:	Vessel
WBDB Tks:	Water Ballast Double Bottom Tanks.

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1. General data / particulars of M.V. PINE 5.

1.1.	Vessel Name:	M.V. PINE 5
1.3.	Nationality:	Panamanian
1.4.	Port of Registry:	Panama
1.5.	Class sign:	HPCV
1.6.	Official Number:	41635 - PEXT - 4
1.7.	Owners (with address):	PINE 5 Shipping Inc Trust Company Complex, Ajeltake Road, Ajeltake Island, Majuro
1.8.	Managers (with address):	Wallem Shipmanagement Inc. 12/F Warwick House, Taikoo Place, 979 King's Road, Island, East. Hong Kong.
1.9.	Classification Society:	Lloyd's Register
1.10.	Classification Number:	9438391
1.11.	P & I Club:	Britannia Steam Ship Insurance Association
1.12.	Type of vessel:	Multi Purpose General cargo Ship
1.13.	Gross Registered Tonnage:	22,998
1.14.	Net Registered Tonnage:	12,320
1.15.	Summer Deadweight:	34,018.00 MT
1.16.	Light Ship:	10,885.70 MT
1.17.	Free Board on Summer Deadweight:	4,406 mm
1.18.	Length overall:	182.87 Meters
1.19.	Length (B/W Perpendiculars):	174.50 Meters
1.20.	Breadth	28.40 Meters
1.21.	Depth Molded	15.30 Meters
1.22.	Summer Draught:	10.919 Meters
1.23.	Builder:	Nantong Yahua Shipbuilding Co. Ltd. China
1.24.	Builder's Hull No.:	NYHS200725
1.25.	Keel Laid:	December 2009
1.26.	Delivered:	27th May 2011
1.27.	Ship's Gear (Deck Cranes – 5 Nos):	IHI Mark II Electro Hydraulic

Ship communications contact details.

1.28.	Inmarsat – C:	435314610 (tlx)
1.29.	Fleet Broadband - Voice:	870 773231983 (Bridge & Master's Cabin)
1.30.	MMSI:	353146 000
1.31.	Ship's Email:	pine5@vessel.wallem.com

Main & auxiliary engine details.

1.32.	Propulsion Type:	Diesel
1.33.	Engine Type:	STX MAN- B&W 6S50MC-CT
1.34.	Propeller:	Fixed Right Hand; 4 Blades Solid Type; Dia - 5.80 mtrs; Pitch 4.59 mtrs
1.35.	Power:	9,480 kw x 127 RPM
1.36.	Service Speed:	15.00 Knots
1.37.	Output (CSR):	8,532 kw X 123 RPM
1.38.	Output (MCR):	9,480 kw X 127 RPM
1.39.	Diesel Generator:	Daihatsu 5DK-20
1.40.	Boiler:	Mission TN OC
1.41.	Bunker Capacity:	
1.41.1.	H.O. (100%):	1,339.00 M/Ts
1.41.2.	D.O. (100%):	105.00 M/Ts

Bunkers R.O.B. at the time of the incident.

1.42.	H.O.:	871.00 M/Ts
1.43.	D.O.:	163.00 M/Ts

Bridge equipment.

1.44.	Radars (X & S Band with ARPA	Furuno - Rcu-014 / FAR 2827 & FAR 2837S
1.45.	Gyro compass:	Raytheon - Standard 22 / 947
1.46.	Automatic pilot:	Furuno – FAP 2000 & Raytheon Nautopilot 2025 / 859
1.47.	GPS 1 & 2 (DGPS):	Furuno GP 150 / 6401-8468 & 6401-8489
1.48.	AIS:	Furuno – Fa – 150 / 24027
1.49.	VDR:	Furuno – VR3000
1.50.	LRIT:	Furuno – Felcom 15 / 4FE0603305F3
1.51.	Echo Sounder:	Furuno – Fe 700 / 2260 - 2042
1.52.	NAVTEX:	Furuno – Nx – 700 B / 6193
1.53.	EPIRB:	McMurdo – E5 Smartfind / 100 - 0029459
1.54.	SART (2 Pcs)	McMurdo – S4 Rescue Sart / S4/1031954
1.55.	HF/MF DSC SSB Radio:	Furuno – Fs-2571c / 5859
1.56.	Inmart "C":	Furuno – Felcom 15 / 35822799
1.57.	Speed Log:	Furuno – Ds – 80 / 11331
1.58.	Wind Speed Direction System:	Obsermet – Pmc – 139 / 13906342

2. Photo copies of documents, obtained from the Master, attached with this report.

2.1. Register	2 Sheets
2.2. Tax Receipt	1 Sheet
2.3. Radio Station License	1 Sheet
2.4. Minimum Safe Manning Certificate	1 Sheet
2.5. Bunker CLC Certificate	1 Sheet
2.6. Cert. of Entry Skuld - P&I Club	3 Sheets
2.7. Certificates Of Class	2 Sheets
2.8. Ship's Particulars	1Sheet
2.9. International Tonnage Certificate	2 Sheets
2.10. International Load Line Certificate	3 Sheets
2.11. Safety Equipment Certificate	2 Sheets
2.11.1. Safety Equipment Form "E"	3 Sheets
2.12. International Oil Pollution Prevention Certificate	2 Sheets
2.13. Safety Radio Certificate	2 Sheets
2.13.1. Safety Radio Form "R"	1 Sheet
2.14. MLC 2006 Certificate	2 Sheets
2.14.1. MLC Intermediate Inspection Report	3 Sheets
2.15. Safety Construction Certificate	1 Sheet
2.16. International Air Pollution Prevention Certificate	2 Sheets
2.17. International Sewage Pollution Prevention Certificate	1 Sheet
2.18. Crew Accommodation Inspection Certificate	1 Sheet
2.18.1. CASR	5 Sheets
2.19. Anti-Fouling Certificate	2 Sheets
2.20. Company's D.O.C.	2 Sheets
2.21. Safety Management Certificate	2 Sheets
2.22. Declaration Of Company	1 Sheet
2.23. Declaration Of DPA	1 Sheet
2.24. ISSC Certificate	1 Sheet
2.25. Declaration Of CSO	1 Sheet
2.26. Continuous Synopsis Record Certificate	1 Sheet
2.27. LRIT Test Certificate	1 Sheet
2.28. VDR annual Test Report	3 Sheets
2.29. SOPEP Plan CVert.	3 Sheets
2.30. Panama Preliminary Casualty report	4 Sheets
2.31. IMO Casualty Report (Full Set)	35 Sheets
2.32. USCG Report Form A	1 Sheet
2.33. ASI Report	1 Sheet
2.34. Statement Of Facts	1 Sheet
2.35. Abstarct From Official Log Book	2 Sheets
2.36. Abstract FromDeck Log Book	2 Sheets
2.37. Abstract From Port Log Book	4 Sheets

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2.38.2.	Ch.Off	1 Sheet
2.38.3.	2nd Off	1 Sheet
2.38.4.	Bosun	1 Sheet
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2.39.	Panama COC Endorsement For Master, Ch.Off, 2nd Off & 3rd Off	4 Sheets
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2.46.	Passage Plan from Blake To Bilbao	7 Sheets
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2.51.	Deviation Card	1 Sheet
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2.53.	Abstract from VHF Log	2 Sheets
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2.61.	Engine Movement Book – Arrival Bilbao	1 Sheet
2.62.	Engine Movement Book – Shifting & Departure Bilbao	1 Sheet
2.63.	Record Of Rest & Work Hours	7 Sheets
2.64.	Hot Work Permit	2 Sheets
2.65.	Internal Audir Report	17 Sheets
2.66.	Enclosed Entry Drill dated 11th April'15	4 Sheets
2.67.	Safety Meeting 13th June'15, 14th June'15 & 20th June'15	7 Sheets
2.68.	Medical Report for Cadet	4 Sheets

3. Particulars of the voyage .

The M.V. PINE 5, on voyage No.5406 had called at the port of Brake in Germany where she arrived in ballast on the 4th of June 2015. At Brake she loaded 1722 M/ts, consisting of steel plates, bars, conveyor belts, for the port of Houston, all of which was loaded in No. 2 hold, distributed in the lower deck and tween deck. She sailed out of Blake on 5th June 2015, commenced her sea passage, for Bilbao in Spain, at 1900 hrs after disembarking the pilot at 1745 hrs. On departure she had a crew of 22, her draft was forward 5.60 metres, aft 6.80 metres, midship 6.20 metres, sea water density being 1000 gms/cc, had on board H.O. 898.83 M/ts, D.O. 218.00 M/ts, fresh water 90.00 M/ts and sea water ballast 9500.00 M/ts. She was expected to arrive Bilbao on 8th June 2015 where she was to load project cargo being wind mills in dissembled parts. During her passage from Blake to Bilbao there was no untowed incident and the vessel experienced moderate weather.

The vessel did arrive Bilbao, ended her sea passage at 0024 hrs on 9th June 2015, pilot boarded at 0154 hrs, and she was all fast at 0306 hrs. At Bilbao the vessel was schedule to load, *at two berths*, project cargo being all for Mexico.

At the first berth the vessel used shore cranes to load approximately 1300 M/Ts of cargo, i.e.

- Nacelles in lower holds of nos 1, 4 & 5
- Noses and Hubs in No 1 tween deck
- One No. Nose loaded on the *forward portion of No. 5 tween deck*.

It may be noted that the stoppers are welded, on deck, for lashing the cargo. This process is carried out as and when a certain cargo is loaded.
Since Cargo was loaded in No. 1, 4 & No. 5 lower hold, the tween decks of these holds were open as the stoppers were being welded in the lower holds, to facilitiate for ventilation, natural lighting and safety. The welding was carried out intermittently in these holds and finally prior to shifting to the second berth, on the 10th night, the

- *Tween deck of No. 1 hold was closed*
- *Tween deck of No. 4 hold was open completely*
- *Tween deck of No. 5 hold – aft portion was open even though welding had completed in the lower hold at 2110 hrs.*

On 10th night the vessel was shifted to the second berth, AZ-2 which was across the first berth and she was all fast at 2352 hrs.
On 11th the cargo work started in the morning, plan was to load Nacelles in No. 2 tween deck aft portion and in No. 3 lower hold, by ship's cranes. As the ship's cranes could not lift the Nacelles, shore cranes were used for loading cargo in No. 3 hold.
On 12th afternoon at around 1415 hrs, while the welding of stoppers, for lashing, was in progress on top of No. 4 & 5 hatch covers, the OS was sent, *alone,* in No. 4 hold and Cadet was sent, *alone,* in No. 5 hold, for fire watch, where the cadet fell down from the tween deck into the lower hold, a height of about 8.80 meters, sustained serious head injuries, went into coma and was hospitalized.
The vessel completed her loading operations at Bilbao 1800 hrs on 13th June'15, departed berth at 2220 hrs, commenced her sea passage at 0048 hrs on 14th June'15 for Coatzacoalcos in Mexico where she was expected to arrive on 28th June'15.
On departure she had on board a total cargo of 4823 M/Ts, H.O. 870.90 M/ts; D.O. 157.90 M/ts, fresh water 110 M/ts, ballast 9500 M/ts, her draft was forward 6.80 mtrs, aft 7.40 mtrs, GMo 4.0 mtrs and a total crew of 21 including the master.

3.1. Weather conditions on route during the passage

On the day and time of the incident, at the port of Bilbao, the weather conditions was overcast sky, Lt airs, temperature 20ºC (i.e.68ºF), barometer pressure 1015 hPa, humidity 75%, good visibility, sunrise was at 0632 Hrs and sun was to set at 2153 hrs (L/T).

3.2. Next port of call.

On departure Bilbao the vessel had on board a total cargo of 4823 M/ts out of which 3101 M/ts of project cargo being Nacelles – i.e. wind mills in parts, were loaded in Bilbao all for Coatzacoalcos & Altamira in Mexico. The vessel commenced her sea passage at 0048 hrs on 14th June'15 for Coatzacoalcos in Mexico where she projected her ETA as 28th June'15.

4. Particulars of the personnel on board.

The Ship's Minimum Safe Manning Certificate No. M30468, issued by Panama Maritime Authority on 15th November 2013, required a minimum manning of One (1) Master, One (1) Chief Officer, One (1) Deck Officers, Three (3) AB Seamen, Two (2) Ordinary Seamen, One (1) Chief Engineer, One (1) Second Engineer, One (1) Engine officer, Three (3) Oilers/Motorman. At the time of the incident the vessel did have the required compliment, and did comply with the requirements of the Minimum Safe Manning Certificate.

5. Particulars of the personnel on duty.

5.1. MASTER:

On the day, time of the incident the Master, an Indian national, 45½ years of age, was in command of the vessel, was resting in his cabin, when at about 1415 hrs., he looked out of his cabin porthole and noticed that welding of lashing stoppers was in progress on top of No. 4 & 5 hatch covers and he observed that there was no ship's staff in attendance. He called the chief officer on the walkie talkie and instructed him to ensure a good fire watch is maintained inside and outside the hatch.
At about 1510 hrs he received a call from the 2nd officer informing him that the cadet had fallen down inside no. 5 hatch and was seriously injured.
He immediately arranged for the crew to assist, informed agent and went in the hold, assisted in bringing up the cadet, along with the stevedores, on to the tween deck. The paramedico team who had arrived by now, took charge from there onwards, administered first aid and took the cadet to the hospital. He later informed all concerened being the managers, DPA, Suptd, P&I Club.
The Master had joined the Vessel on 3rd March 2015, sailed in conjunction with the previous Master till 26th March 2015 when he took over command of the vessel in Bilbao, Spain and was on a four months contract. He joined Wallem Shipmanagement 2 years ago, this was his first command, had also sailed on a sister ship "PINE III" for 7 months as a chief officer. He had earlier sailed mainly on bulk carriers, containers and this was his third general cargo ship. He sailed with NYK Shipmanagement, was a chief officer for about 10 years and started his sea carried with United Ship management as a cadet in 1988. He holds a Master's Certificate of Competency, obtained in the year 2010, issued by the Maritime and coastguard agency, UK, endorsed by the Panama Maritime, attesting the recognition of the certificate issued under the provisions of the International Convention on Standards of Training, Certification and Watch keeping for Seafarers 1978 as amended 1995, (STCW). There are no applicable limitations applying to his certificate.

5.2. CHIEF OFFICER:

On the day, time of the incident, the Chief Officer, a Srilankan national, 36 years of age, had finished keeping his port watch from 1000 hrs to 1400 hrs, was in the ship's office when at about 1415 hrs he was asked by the Master to ensure that a fire watch is maintained inside and outside holds/hatches where every welding of lashing stopers was in progress. He deputed O.S. to go inside No. 4 hatch and the cadet to go inside No. 5 hatch. At about 1510 hrs he was informed by AB3 that the cadet had fallen down in No. 5 lower hold. He immediately went inside No. 5 hold and saw the cadet was lying down on his left side, not responding, breathing heavily and bleeding from the head. He tried to talk to him but did not get any response so immediately called for help on the walkie talkie. The crew responded immediately, came down with stretcher, oxygen bottle, first aid was administered and the cadet was lifeted up to the tween deck by about 1545 hrs where the paramedico took over the charge.
He joined the vessel as Chief Officer on 7th May 2015, at Praia Mole in Brazil, had joined Wallem Shipmanagement in the year 2008 as a 3rd officer, was promoted to 2nd officer in 2008 and to Chief officer in 2011. He first came out to sea, in the year 2001, as a cadet with Ceylon Shipping Company. During his career he worked on board container vessels, general cargo and had also served on board a sister ship "PINE 1" as a Chief Officer for a period of 5 months.
He holds a Master's Certificate of Competency, obtained in the year 2014, issued by the Maritime and coastguard agency, UK, endorsed by the Panama Maritime, attesting the recognition of the certificate issued under the provisions of the International Convention on Standards of Training, Certification and Watch keeping for Seafarers 1978 as amended 1995, (STCW). There are no applicable limitations applying to his certificate.

5.3. SECOND OFFICER:

On the day of the incident the Second Officer, a Russian national, 34 years of age, was keeping port watch from 1400 – 1800 hrs and from 0000 hrs to 0600 hrs, came on his port watch at 1400 hrs, took over the watch from Chief Officer. Soon after he came on watch, at about 1415 hrs, the stevedores started welding lashing stoppers on top of hatch covers no 4 & 5. He was asked by the Master, on the walkie talkie, to keep a proper fire watch, in the meantime the chief officer deputed the OS for fire watch inside no 4 hold & tween deck and cadet for no 5 hold and tween deck. He himself was monitoring on top of no 4 & 5 hatch covers.
At about 1500 hrs he called the cadet, on the walkie talkie, for updates and his whereabouts but did not get any response. He sent the AB3 inside no 5 hold, from the aft hatch entrance, to look for the cadet. The AB3 came up in about 10 mins,

reported that the cadet had fallen down, unconscious, bleeding and breathing heavily. The 2nd Officer immediately informed the Master, Ch. Officer, arranged medical gear and went down to assist.
The 2nd Office started his sea career in the year 2003, with a Russian company, after graduating from the maritime academy, there after he served with Norbulk Shipping for a period of 5 years as a 3rd Officer and joined Wallem Shipmanagement in the year 2011 as a 3rd Officer.
He joined this vessel, as a 2nd Officer, on 31st May 2015, at Dunkirk in France, this being his second contract as a 2nd Officer. He holds a second mates certificate of competence issued by the Russian Federation, in the year 2007, endorsed by the Panama Maritime, attesting the recognition of the certificate issued under the provisions of the International Convention on Standards of Training, Certification and Watch keeping for Seafarers 1978 as amended 1995, (STCW). There are no applicable limitations applying to his certificate.

5.4. THIRD OFFICER

On the day of the incident, the 3rd Officer, 29 years of age, Indian national, kept port watch from 0600 hrs till 1000 hrs and from 1800 hrs to 2400 hrs,, was off duty and resting in his cabin. At about 1545 hrs, he learnt of the incident from the 2nd Officer, went to no 5 tween deck and observed that the cadet was being attended by the paramedico. He was asked to accompany the cadet to the hospital, where the cadet was immediately taken to the emergency room.
He holds Second mates Certificate of Competency issued by the Maritime and coastguard agency, UK, in the year 2013 and endorsed by the Panama Maritime, attesting the recognition of the certificate issued under the provisions of the International Convention on Standards of Training, Certification and Watch keeping for Seafarers 1978 as amended 1995, (STCW). There are no applicable limitations applying to his certificate.

5.5. AB-3

On the day and time of the incident the AB-3, an Indian national, 29½ years of age, was on gangway watch, when at about 1515 hrs he was asked by the 2nd Officer to check for the cadet who had gone in No. 5 hold and was not responding on the walkie talkie. The AB-3 went inside the lower hold, from the aft entrance, and saw the cadet had fallen down. He got very scared, immediately came up and reported the findings to the 2nd Officer. Thereafter he assisted the ship's staff in arranging to pick up the cadet who was later send ashore with the peramedico.
He had joined the vessel, as an AB, on 1st June 2015, at Dunkirk in France, on a nine months contract. He first came out to sea in the year 2008, as a trainee O.S.,

joined Wallem Shipmanagement in the year 2011 as an O.S. He was promoted to an AB about 1 year ago.

5.6. AB-2

On the day of the incident the AB-2, an Indian national, 25 years of age, was resting in his cabin after his 0800 – 1200 hrs watch and came to know of the incident at about 1700 hrs. During his watch he was removing dunnage from no 5 hold, thereafter assisted in closing the hatch cover and went to prepare no. 4 & 5 cranes for cargo operations.
He had joined the vessel, as an AB, on 7th May 2015, at Praia Mole in Brazil, on a nine months contract. He first came out to sea in the year 2011, as an O.S., joined Wallem Shipmanagement in the year 2013 as an O.S.

5.7. OS

On the day of the incident the OS, an Indian national, 30 years of age, came on day work at 0700 hrs and was working under the instruction ans supervision of the Bosun. He was working in the preparation of the no. 4 & 5 cranes, for cargo operation, when at about 1415 hrs, he was asked to go into no. 4 hold, to keep fire watch, as lashing stoppers were being welded on top of no. 4 hatch cover. He had his walkie talkie and a torch with him and reported of no incident inside the hold. While he was in the hold, he heard the Chief Officer asking all crew to assist in No. 5 hold; he came up and assisted as required.
He had joined the vessel, as an OS, on 19th April 2015, at Puerto Cabelo in Venezula, on a nine months contract. He first came out to sea in the year 2011, as an O.S., with Dohle Daunatic Shipping, joined Wallem Shipmanagement in the year 2012 as an O.S. and this was the third ship of his career.

6. Particulars of the sea state, weather and wind.

The weather conditions at the time of the incident was overcast sky, Lt airs, temperature 20ºC (i.e.68ºF), barometer pressure 1015 hPa, humidity 75%, good visibility, sunrise was at 0632 Hrs and sun was to set at set was suppose to be at 2153 hrs (L/T).

7. Particulars and sequence of events.

7.1. Type of incident & details of the sequence of events:

Marine Casualty: Cadet fell down from No. 5 tween deck to the lower hold And sustained serious head injuries.

7.2. Sequence of events.

The "M.V PINE 5", ocean going multi purpose cargo ship, having 5 holds with tween decks, 5 deck cranes, had called the port of Bilbao in Spain and was alongside & all fast at 0306 hrs on the 9th of June 2015. She was to load at two berths, project cargo, being Wind mills, for Mexico.
She arrived from Brake in Germany where she had loaded 1722 M/ts, consisting of steel plates, bars, conveyor belts, for the port of Houston, all of which was loaded in No. 2 hold, distributed in the lower deck and tween deck.

Tween deckers are general cargo ships with two or sometimes three decks in the cargo holds. The upper deck is called the main deck or weather deck, and the lower deck is the tween deck. Beneath the tween deck is the hold space i.e. lower hold, used for general cargo. Tween deck is basically a storage space between lower hold and the main deck and is any deck except the upper or the lower most and is often retracable.
Cargo ships that have retractable tween decks, which can be moved out of the way, so that the ship can carry bulk cargo, are known as multipurpose vessels.
A vessel with tween deck can load for example machinery in the tank top (lower most deck/hold) and then close the tween deck and load additional cargo on the tween deck. A non-tween decker has no levels in the holds.
On the PINE 5 has one tween deck, are retracable, have four pontoons, two of which fold and open for forward portion and two for aft portions.

At the 1st berth the vessel loaded with shore cranes, about 1300 M/ts of cargo being *Nacelles* i.e. Motors, Generators of windmills, in lower holds of Nos.1, 4 and 5. She also loaded *Noses and Hubs* in No. 1 tween deck and *One No. Nose (Cone),* weighing about 300 Kgs, on the *forward portion of No. 5 tween deck*. On 10th night, after completing her cargo work at the 1st berth, the vessel was shifted to the 2nd berth, which was across the first berth and she was all fast at 2352 hrs.

At the time of shifting

- *Tween deck of No. 4 hold was open completely*
- *Tween deck of No. 5 hold – aft portion was open even though welding had completed in the lower hold at 2110 hrs.*

At the second berth the cargo work started on 11th morning, plan was to load Nacelle in No. 2 tween deck aft portion, and in No. 3 lower hold using ship's cranes.

It may be noted that the declared weight of Nacelle is 68.80 M/Ts plus the weight of beams and spreaders, used for lifting, a total of about 74 – 75 M/Ts.

The ship's cranes could not lift and load the Nacelles, suspected the declared weight to me more than the cranes capacity, thus shore cranes were ordered, by stevedores and cargo was loaded in No 3 lower hold.

LOADING OF NACELLE

On the 12th morning, the plan was in following sequential order

- To close no. 5 tween deck *aft portion* and then no. 4 tween deck which was open as the lashing in the lower hold was being carried out the previous day.
- There after close both no. 4 and 5 hatch covers so that wind mill blades could be loaded on top of No. 4 & 5 hatch covers.
- To prepare no 4 & 5 cranes for Gemini operation as ship's cranes were to be used for loading.
- Attend to other jobs like receiving stores, picking up lashing material from shore side, etc

On the 12th morning, 3rd officer was the duty officer for, from 0600 hrs to 1000 hrs, when the crew reported for work at about 0755 hrs, they were delegated to first close No. 5 tween deck, aft part and then proceed to close no. 4 tween deck. While the crew were in process of closing no. 5 tween deck, the stevedores requested to *first close the no. 4 & 5 hatch covers* so that they could start the loading operation, by

shore cranes and load wind mill blades on top of No 4 & 5 hatch covers. This request was agreed upon and accommodated viewing:

- *The stevedores were waiting and idle,*
- *The shore cranes were idle,*
- *Expedite the loading, viewing week end, in order to avoid delay to the vessel and schedule an early departure.*

The crew was delegated accordingly to close No. 4 & No. 5 Hatch covers and both the tween decks were left as there were i.e.No. 4 fully open and No. 5 aft portion open.

After closing of No. 4 & 5 hatch covers the crew went to prepare the no 4 & 5 cranes for "GEMINI" operation, so that the wind mill blades could be loaded with the ship's cranes, same was completed by about 0900 hrs,

GEMINI OPERATION - In GEMINI operation the cranes, which are basically pedestal cranes with an extra swiveling base, can be connected and used in parallel / tandem and controlled only from one crane, i.e. the master crane. The purpose is to double the lifting capacity of the cranes and in this case the effective combined doubled lifting capacity would be 40 M/Ts + 40 M/Ts = 80 M/Ts.

In may also be noted that the Stevedore also ordered for Shore crane, in anticipation, and finally shore cranes were used in to load the wind mill blades on top of no. 4 & 5 hatch covers.

Wind Mill Blades being loaded on top of No. 4 & 5 Hatch Covers

A series of events took place and due to the pressure of work and *the fact that the tween decks were left as there were i.e.No. 4 fully open and No. 5 aft portion open was forgotten and missed out.*

- Loading operation commenced at 0900 hrs, loading windmill blades on top of no 4 & 5 hatches.
- Third Officer finished his duty at 1000 hrs and handed over watch to Chief Officer, who kept port watch from 1000 hrs to 1200 hrs.
- The crew got busy, till about 1030 hrs in removing dunnage, from no 2 tween decks, which was to be used for cargo that was to be loaded on no 2 hatch cover.
- Vessel received stores and crew had to attend to same.

- There were odd jobs for loading cargo like
  - Cutting rails to make acess for cargo loading
  - Picking up lashing material from shore side
  - At about 1345 hrs, the fire alarm got activated for no. 1 cargo hold, which was investigated and found to be false.

The stevedores stopped for lunch braek from 1200 hrs to 1400 hrs and second officer came on watch at 1400 hrs, took over watch from the Chief Officer.

It may be noted that the second officer was not aware that the No. 4 & No. 5 tween decks were in open position, when he took over the watch from Ch.Officer.

After lunch, 12th, i.e. at around 1400 hrs, welding work started on top of No. 4 & 5 hatch covers. The company has a policy as per SMS procedures that hot work permit to be filled and approval obtained from the company which was complied with at 0700 – 0730 hrs. At around 1415 hrs the Master observed from his cabin that lashing of stoppers was in progress and that there was no ship's staff in attendance. He called the chief officer on the walkie talkie and instructed him to ensure a good fire watch is maintained inside and outside the hatch.

Welding of Lashing Stoppers on top of Hatch Covers

The Chief Officer thus delegated the OS to go in No. 5 Hold and the Cadet to go in No. 4 Hold for fire watch, *who went in without a walkie talkie or a torch light*.

It may be noted that both OS and Cadet were sent alone, no one was kept on top i.e. at the hatch entrance to monitor them nor was any enclosed space or working aloft

precautions taken. There was poor lighting inside the cargo hold infact the tween deck is only fitted with a small fixed light located at the access ladder which does not illuminate the entire tween deck and makes access dangerous when the top hatch covers are closed.

At about 1500 hrs, when it was time for tea break, the second officer called the cadet on walkie talkie, but did not receive any response.He sent AB 3 in No. 5 hold to look for the cadet.
Again there was no one to monitor the AB3 when he went, alone, inside No. 5 hold.
The AB3 went in the lower hold and found that the cadet had fallen down from the tween deck on to the lower hold, a height of about 8.80 metres, was unconscious, breathing heavily, bleeding and lying on his left side.
The AB3 immediately came up and informed the second officer of the situation who in turn informed the Master. Cargo operations were ceased and all hands were assigned to assist the cadet from the hold.

7.3. Action immediately after the incident.

Once the Master learnt of the situation he

- Immediately arranged for the crew to assist, arrangeged to open ventilators, went in the hold, assisted in bringing up the cadet.
- The stevedores stopped work and assisted.
- The agent called Paramedico.
- First Aid equipment was lowered inside the hold
- Cadet was brought up to the Tween deck where the Paramedico took over charge, gave him first aid and there after took him to the hospital accompanied with the third officer who also carried his documents.
- Informed the DPA, Suptd, P&I Club, Fleet Personnel Department.
- No more cargo work was carried out for the day.

7.4. Assistance after the incident.

- Once the cadet was reached the hospital, he was immediately taken to the emergency room. The doctors declared him brain dead and in critical condition.
- The agent also reached the hospital and kept the Master informed of the situation.
- The cadet's parents were attending the hospital on daily basis and the company provided all support including financial backing to the parents.

7.5. Place, position, date and time when the incident occurred.

Place:	Alongside Berth in the Port of Bilbao in Spain
Location:	No 5 Cargo Hold (Fell from tween deck to lower hold a height of about 8.80 metres.
Date:	12th June 2015
Time:	1500 hrs. (L.T.) (Approximately)

7.6. Details of damage to the vessel.

There was no damage to the vessel, the water tight integrity of the vessel was not jeopardized, nor was there any Environment pollution as a result of the casualty.

7.7. Details of the casualty.

The Cadet, 21 years of age, male, 175cms (i.e. 5' 09") in height, about 75 Kgs (165 lbs) in weight, medically fit, unmarried Ukraine national was known to be of pleasant personality.
This was his second ship he had joined the vessel at Dunkirk in France on 31st May 2015 i.e.13 days ago. His first ship was a PCC which does not have any Tween decks. He started his sea career with Wallem Ship Management.

7.8. Extract of documents.

Copies of documents and statements attached along with the report were obtained from the Master and managers are the extracts of the original documents. All interviews were held in the presence of the Master.

7.9. Interview of relevant staff members.

The Duty personnel all with other personnel were interviewed, in presence of the Master and their statements recorded. All cooperated to utmost and narrated their version of the episode.

8. Element factor.

8.1. Human factor.

8.1.1. People Factor :

- The vessel was complying with the requirement of the Safe Manning Certificate No. M 30468 issued on 15th November 2013. Crew was found to be qualified as per the requirements of the STCW and holding valid certificates.

1) *STCW Convention*

The Convention prescribes standards relating to training, certification and watch keeping for seafarers which countries are obliged to meet or exceed. The regulations contained in the Convention are supported by sections in the STCW Code. Generally speaking, the Convention contains basic requirements which are then enlarged upon and explained in the Code.

2) *STCW CODE*

Part "A" of the Code is mandatory. The standards of competence required for seagoing personnel are given in detail in a series of tables.

Part "B" of the Code contains recommended guidance which is intended to help Parties implement the Convention.

8.1.1.1. Organization on board:

- The crew consisted of Five Nationalities i.e. Indian, Srilankan, Russian, Ukranian and Bangladeshi.
- There was good harmony on board
- The personnel on duty, at the time of the incident, had rested as per required minimum number of hours, medically fit, and were not fatigue.

8.1.1.2. Working and Living Conditions :

- The ship was built in the year 2011, fairly new and had good aminities and living conditions.

8.1.1.3. Ship Factor:

- The vessel has all valid trading certificates. The Panama Annual Safety inspection was overdue and was last held in Jiangyin, on 14th May 2014.

8.1.1.4. Shore Side Management:

- The mangers employ the crew via their agent's located all over the world.
- The Company has ISM system which is being implemented on board.
- The Document of Compliance Certificate was issued on 21st March 2012 and endorsed on 5th March 2015.
- The vessel is normally trading worldwide with no fixed route.

8.1.1.5. External Influence and Environment:

- The weather condition on the day and the time of the incident was overcast sky, Lt airs, temperature 20ºC (i.e.68ºF), barometer pressure 1015 hPa, humidity 75%, good visibility, sunrise was at 0632 Hrs and sunset was suppose to be at 2153 hrs (L/T).

8.2. Mechanical error.

There was no direct involvement of any machinery in the incident thus Mechanical Factor can be ruled out.

9. Analysis, Conclusion and Recommendations.

9.1. Analysis:

1) The "M.V. PINE 5 is a Multi purpose cargo ship with 5 cargo holds having tween deck, 5 deck cranes, on a worldwide route with no restrictions.
2) The vessel was alongside at the port of Bilbao in Spain.
3) The crew had good harmony and was a mixture of Indian, Srilankan, Russian, Ukranian & Bangladeshi.
4) The vessel was loading project cargo for Mexico.
5) Tween decks in No. 4 hold and aft part of No. 5 hold were in open position. The tween decks were to be closed but due to pressure of work, giving priority to other various jobs inorder to expedite loading operations, avoid delays viewing weekend etc *the fact that the No. 4 Tween deck was fully open and the aft portion of No. 5 tween deck was open was forgotten and missed out by the Chief Officer, Duty Officer and Crew.*
6) Hotwork permit was signed and approval taken from the company at 0700 hrs on 12th June'15 even though the welding jobs started at 1400 hrs.
7) At around 1400 hrs, the welding of stoppers on hatch top covers started.
8) At around 1415 hrs, Master advised the Chief Officer to ensure proper fire petrol both inside and outside the hold / hatch.
9) At around 1430 hrs, the chief Officer delegated the OS to go in No. 4 hold and Cadet to go in No. 5 hold for fire watch. The top hatch covers of both were closed and welding of lashing stoppers was in progress.
10) The cadet was not aware that the aft tween deck cover in this hold was left open. Infact since the forward portion of the tween deck was closed, he walked over it and fell into the opening and landed in the lower hold.

Note: The Cadet went inside the hold without a torch or walkie talkie

11) The aft portion of the tween deck hatch cover was left open without any warning sign or barrier (guard rails) to prevent a person from falling to the lower hold.

No supervision, no precautions, nor any check lists were complied with, for enclosed space entry and working aloft.

There was poor lighting inside the cargo hold, the tween deck is only fitted with a small fixed light located at the access ladder which does not illuminate the entire tween deck and makes access dangerous when the top hatch covers are closed.

The company does have the SMS in place, as per chapter nineteen of the safety manual

- ✓ *Enclosed space entry permit & ckeck list - form 19.1.1*
- ✓ *Permit to work – Aloft or over side – form 19.2.2.*
- ✓ *Hot work permit – form 19.3.4*
- ✓ *Islolation Permit (Lock out – Tag Out OR LOTO) – form 19.9*

12) At around 1500 hrs second officer tried communicating with the cadet on walkie talkie, got no response and send AB3 inside no. 5 hold.
13) The AB3 went in alone again no *precautions were taken for enclosed space entry and working aloft.*
14) The AB 3 went in the lower hold and found that *the cadet had fallen from the tween deck to the lower deck, a height of about 8.80 meters was unconscious and bleeding*. He came up and informed the 2nd officer who informed the Master.
15) The cadet was taken out with help of ship' staff, stevedores and para medico took charge rendering him first aid and took him to hospital where he was taken to the emergency room, declared brain dead and in critical condition.
16) Mangers and all concerened were informed of the incident.

9.2.Conclusion.

- ❖ The cadet was asked, by the Chief Offiver, at around 1430 hrs, to go into the No. 5 hold to keep fire patrol.
- ❖ The cadets having fallen down was known at around 1500 hrs on 12th June 2015.
- ❖ There was cordial relationship on board. No argument, heated exchange or fight was known to have taken on board and no foul play is suspected. The cadet was physical fit and stable.
- ❖ *The Cadet had joined the vessel at Dunkirk in France on 31st May 2015 i.e.13 days ago. This was his second ship, his first ship was a PCC which does not have any Tween decks.*
- ❖ Being farely new to sea life and multipurpose vessel with tween deck, the cadet was not knowledgeable enough nor was he able to judge the dangers, and the precautions to take when entering enclosed space or when working aloft.

- There are no hazard warning markings (photo-luminescent) to highlight tween deck perimeter edges.
- There are inadequate provision for safety lines in tween deck area. Safety lines are provided only on the sides of the tween deck opening and even they were nor rigged. There is no provision for rigging safety lines in athwartship direction on the edges of hatch pontoons
- There was failure of shipboard management to recognize that the Cadet lacked familiarization & experience of this vessel type prior to being assigned tasks independently on board.
- *The fact that both the OS and the Cadet were sent in without any preacautions or following any check lists and there after the AB3 was also sent to look for the cadet without following any check list clearly indicates the callous attitude of the crew towards safety precautions.*
- No portable lights, cargo clusters were rigged to ensure proper lighting inside the hold.
- The cadet entered the No. 5 hold without a torch light and a walkie talkie and was not supervised by any officer.
- The ship staff did not prioritize the jobs properly and due to the pressure of work missed out on the fact the the tween decks were in open position. They caved in to the request of the stevedores and closed the hatch cover without closing the tween deck. - *Poor seamanship by deck crew to leave half of the tween deck hatch cover open and close the top hatch covers.*
- No crew members were subjected to Alcohol test after the incident.
- Even though the Hot Work Permit was filled and approved by the managers at 0730 hrs, the hot work did not start till 1415 hrs, and leads me to believe that there were no preparations made as required by the check list.
- In the Internal audit carried out on 8th July'15 it was noted that:
  - The Ship staff not aware of the latest/updated checklists
  - They Lack of supervision/verification by other team members and senior officers, that all required checklists are filled correctly
  - Company's procedures not followed diligently.
  - Lack of enthusiasm of staff to comply with the various checklists

9.3. Recommendations.

- ✓ The staff on board missed out on the basic precautions for entering enclosed space and working aloft (since tween deck was open).
- ✓ The vessel should be subjected to an ISM audit and thoroughly grilled to the safety procedures.
- ✓ All crew members must take it upon them as a responsibility to ensurethat proper forms are filled before undertaking any job. The company should implement and spread the concept of a strong safety culture in the whole fleet to avoid such callous attitude.
- ✓ Boundries of Hazardous areas should be clearly marked / painted.
- ✓ The fact that the hot work permit was filled and signed by the company does not relieve the ship board staff of the duties of ensuring safety precautions are followed to the tooth.
- ✓ Status of tween deck open closed should be clearly displayed in the ship's office and also be a part of the information in the handing over / taking over watch procedures.
- ✓ When ever tween decks are left open, safety lines should be rigged. Provisions should also be made for rigging safety lines in awthart ship direction if half the pontoon is open on any hatch cover.
- ✓ Viewing the construction of the vessel's tween deck, the Tween decks should not be left open prior to closing the hatch covers.
- ✓ New joining staff should be thoroughly familiarized with the layout of the tween decks and the procedures for entering hold.
- ✓ Adequate fixed lighting should be provided in the tween decks in next dry dock.
- ✓ Work plan should be discussed, with all crew, prior to the start of the work for the day inorder to identify hazardous jobs and to ensure required safety precautions are taken.
- ✓ Stress should be laid on
    - *International Maritime Organization (IMO) adopted amendments to SOLAS Regulation III/19 which added a new requirement for mandatory enclosed space entry and rescue drills. From 1 January 2015 all persons involved in enclosed space entries, and / or assigned enclosed space rescue duties, is required to take part in enclosed space entry and rescue drills at intervals not exceeding two months.*
    - *Enclosed space entry and rescue drills should be planned and conducted in a safe manner, taking into account, as appropriate, the guidance provided in the recommendations developed by the Organization. Each enclosed space entry and rescue drill shall include, checking and use of personal protective equipment required for entry, communication equipment and procedures, instruments for measuring the atmosphere in*

enclosed spaces, rescue equipment and procedures and instructions in first aid and resuscitation techniques.

- ✓ *Training - In accordance with IMO Resolution A. 1050(27):*
  - ✓ *The company should elaborate a procedural implementation scheme which provides for training in the use of atmospheric testing equipment in such spaces and a schedule of regular onboard drills for crews.*
  - ✓ *Only trained personnel should be assigned the duties of entering, functioning as attendants or functioning as members of rescue teams. Ships' crews with rescue and first aid duties should be drilled periodically in rescue and first aid procedures. Training should include as a minimum:*
    - *identification of the hazards likely to be faced during entry into enclosed spaces;*
    - *recognition of the signs of adverse health effects caused by exposure to hazards during entry*
    - *A knowledge of personal protective equipment required for entry.*
  - ✓ *Ship managers should implement a training and familiarization program on board vessels in order crew members involved with relevant operations to be highly trained, conducting relevant procedures safely.*
- ✓ Lastly and not the least a strong safety culture should be induced in the ship staff with each person taking upon him the onus and responsibility of running a safe ship. The check lists should not be treated as a piece of document to be filled for completing the formalities; instead they should be strictly followed and seriously adhered to.

10. Summary.

- ❖ This report is compiled from the physical evidence and from interviews with the key personnel on board the "M.V. PINE 5".
- ❖ The "M.V. PINE 5 had on board a casualty, on 12th June 2015, where by a cadet, 21 years of age, male, who had joined the vessel 13 days ago, fell from the No. 5 tween deck on to lower hold, a height of about 8.80 metres and sustained serious head injury making him unconscious. He was immediately hospitalized in Balbao, Spain.

11. Foreword.

Panama Maritime Authority Directorate General of Merchant Marine, Department of Navigation and Maritime Safety appointed **Capt. Ashok Jain** to investigate the casualty. The "M.V. PINE 5", investigation took place on the 10th -11th of July 2015, when the vessel had called the port of Houston for discharging her load of project cargo.

Panama Maritime investigation authorities acted in accordance to the IMO Resolution MSC 255 (84) and MSC 257 (84) and Resolution No. 106 – 135 – DGMM issued by the Authority on 09th September 2013 for the purpose of authority having direct control of all marine casualty investigations involving Panama flagged vessels.

All interviews, inspections and other actions by Capt. Ashok Jain, took place in the presence of the Master of the vessel, In accordance with IMO Resolution A.849 (20), as amended by IMO Resolution A.884 (21), concerning investigations of marine casualties and incidents. This report is submitted to the Panama Maritime Authority Directorate General of Merchant Marine. All received statements, documents and records as mentioned in item 2 are attached.

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