



Panama Maritime Authority
Directorate General of Merchant Marine
Marine Accident investigation Department

REPORT: M/V “SICHEM AMETHYST”R-038-14-DIAM
IMO: No. 9354571
Date: 28th March 2014



REPORT ON THE INVESTIGATION OF THE FIRE OF



m.v. “SICHEM AMETHYST”

IMO number 9354571

Register Number 32163-06-B

**At Tarragona Anchorage, Spain
On the 28th March 2014**

In accordance to Resolution No. 106-12-DGMM of February 17 of 2009 from the Merchant Marine General Directorate of the Panama Maritime Authority, on it's second article stipulates; “Similarly investigations are not designed to exert actions criminal, civil or administrative, at which they will be subject only to the purposes stated in the Code for the Investigation of Marine Casualties and Incidents adopted by the International Maritime Organization (IMO)



GLOSSARY OF ABBREVIATIONS

A/B	Able Seaman
ABS	American Bureau of Shipping
AIS	Automatic Identification System
ARPA	Automatic Radar Plotting Aid
BA	British Admiralty
BMA	Bahamas Maritime Authority
BNWS	Bridge Navigational Watch System
BTM	Bridge Team Management
BV	Bureau Veritas
CM	Crisis Manager
COC	Certificate of Competency
COG	Course over Ground
COLREG	Convention on the International Regulations for Preventing Collisions at Sea
CPA	Closest Point of Approach
DNV	Det Norske Veritas
DOC	Document of compliance
ECR	Engine control room
ETA	Estimated time of arrival
GPS	Global Positioning System
HP	Horse Power
HRS	Hours
IMO	International Maritime Organization
ISM	International Safety Management
KG	Distance from the keel to the centre of gravity
Kts	Knots
kW	Kilowatt
LBP	Length Between Perpendiculars
LR	Lloyd's Register
LRIT	Long Range identification and Tracking
LT	Local Time
LOA	Length overall
MARPOL	International Convention for the Prevention of Pollution from Ships
MB	Longitudinal distance of centre of buoyancy from amidships



MCA	Maritime and Coastguard Agency
MCR	Maximum Continuous Rating
MF	Longitudinal distance of flotation from amidships
MG	Longitudinal distance of centre of gravity from amidships
MGN	Marine Guidance Note
MSC	Maritime Safety Committee (of IMO)
Mt	metric tonnes
OOW	Officer of the Watch
OS	Ordinary Seaman
PA	Public Address
PMA	Panama Maritime Administrator
SMS	Safety Management System
SOG	Speed over Ground
SOLAS	International Convention for the Safety of Life at Sea
STCW	Standards of Training, Certification and Watch keeping for Seafarers
S-VDR	Simplified Voyage Data Recorder
UTC	Universal Co-ordinated Time
VDR	Voyage Data Recorder



INVESTIGATION OBJECTIVES

Ref. IMO Resolution MSC.255 (84)/MSC.257 (84) *CODE FOR THE INVESTIGATION OF MARINE CASUALTIES AND INCIDENTS.*

The objective of any marine casualty investigation is to prevent similar casualties in the future. Investigations identify the circumstances of the casualty under investigation and establish the causes and contributing factors, by gathering and analyzing information and drawing on conclusions. Ideally, it is not the purpose of such investigations to determine liability, or apportion blame. However, the investigating authority should not refrain from fully reporting the causes because fault or liability may be inferred from the findings.



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1. SUMMARY

- 1.1 The Panama registered oil/chemical tanker SICHEM AMETHYST arrived to the Port of Tarragona, Spain, on the 28th March 2014 from the Port of Fos, France to load Styrene Monomer destined to Tunis.
- 1.2 The SICHEM AMETHYST arrived and dropped anchor at 06.06 hrs (LT) in position 41°05.10 N, 001° 15.21 E waiting for the confirmation from agent to berth.



Figure 1.1 – Position at the time of the fire



- 1.3 As per agent's information it was expected to take bunkers while in anchorage waiting to berth.
- 1.4 The bunker barge arrived alongside but had to be casted off due to heavy swell since the ship to ship transfer would have not been carried out safely.
- 1.5 The Captain called Tarragona traffic control to inform them about the unsuccessful bunker operation.
- 1.6 Traffic control advised the Captain that pilot would be on its way hence to start preparing the engine and heave upon the anchor.
- 1.7 While the vessel would prepare for the engine and heaving up the Master went to take a shower on his cabin.
- 1.8 At the time the Captain was getting out from the shower the fire alarm was heard.
- 1.9 The Captain quickly proceeded to the bridge and when opening the door leading to the passage way, a thick black and irritating smoke was observed.
- 1.10 All crew were mustered for a head count and to organize teams to fight the fire located in the Chief Engineer's cabin
- 1.11 The fire could not be extinguished by the crew and shore support was needed.
- 1.12 Several difficulties were encountered and shore assistance was needed.
- 1.13 The fire was extinguished by shore fire fighters taken onboard by helicopter.
- 1.14 Three Fi-Fi tug boats, a SAR boat and one helicopter were employed to give assistance.
- 1.15 No casualties were reported although crew were taken to hospital in Tarragona to be treated for fumes and smoke inhalation.
- 1.16 No pollution was reported.
- 1.17 The vessel sustained fire and smoke damages on accommodation as well on electric systems.



- 1.18 This report will analyze in depth the mustering of the crew, the equipment used as well as the probable cause of the fire.

- 1.19 Shore support operations will also be analyzed.



2. PARTICULARS OF VESSEL

NAME	:	SICHEM AMETHYST
FLAG	:	PANAMA
PORT OF REGISTRY	:	PANAMA
OFFICIAL NUMBER	:	32163-06-B
CALL SIGN	:	3EGQ6
IMO NUMBER	:	9354571
TYPE	:	Oil/Chemical Tanker
L.O.A.	:	114.99 M
L.B.P	:	108.50 M
BREADTH	:	18.20 M
DEPTH	:	9.65 M
G.R.T	:	5,303
N.R.T	:	2,631
DEAD WEIGHT	:	8,413

- 2.1 The vessel is powered by a six (6) cylinder HITACHI ZOSEN MAN B&W two stroke main engine type 6L35MC single acting which develops 3,900 kW at 210 rpm driving a right handed fixed propeller.
- 2.2 The cargo is carried in a total of twelve (12) stainless steel cargo tanks with a total capacity 9,204 m³ at 98% of its total capacity.

- 2.3 The vessel was keel laid on 24th April 2006 and delivered on the 13th October 2006 in Imabari, Japan at MURAKAMI HIDE ZOSEN K.K. Shipyard. At the time of the grounding she was owned by NEW VICTORY LINE S.A. with ARIAS B. Y ASOCIADOS as legal representative in Panama. Managers were BERNHARD SCHULTE SHIPMANAGEMENT (INDIA) PRIVATE LTD. of Mumbai, India registered with the company ID 1857193



Figure 2.1– SICHEM AMETHYST
General views





- 2.4 The vessel is classed with Nippon (NKK) Classification Society. At this time she held up to date and valid statutory certificates.
- 2.5 The SICHEM AMETHYST was inspected by the Panama Maritime Administration on the 1st April 2013 with no deficiencies observed.
- 2.6 The last Port State Control (Paris-MoU) inspection was carried out in Rotterdam (The Netherlands) on the 09th September 2013 with no deficiencies or observations recorded.

Ship Manager

- 2.7 The managers and operators of the SHICHEM AMETHYST is BERNHARD SCHULTE SHIPMANAGEMENT of Mumbai, India.
- 2.8 BERNHARD SCHULTE SHIPMANAGEMENT was created in 2008 by combining four (4) ship management organizations already owned by the SCHULTE group into one integrated company:
 - Hanseatic Shipping (established 1972)
 - Dorchester Atlantic Marine (1978)
 - Eurasia Group (1981) and
 - Vorsetzen Bereederungs- und Schiffahrtskontor (1999)
- 2.9 As part of the Schulte Group, Bernhard Schulte Ship management is anchored in the tradition and strength of a family business first established in 1883.



Bridge Equipment

2.8 The vessel was fitted with the following navigational equipment on the bridge

Equipment / S/N No.	MANUFACTURE	TYPE
RADAR 1	J.R.C.	MPBX41984
RADAR 2	J.R.C.	MPBX41984
FIRE PANEL	NOHMI BOSAI LTD.	FAOC511B-10L
PUBLIC ADDRESS	J.R.C.	NCE-8520B
TELEGRAPH	NABTESCO	-
STEERING STAND	TOKIMEC	PR6112A-EL-SS2
AIS	J.R.C.	JHS-182
ECHOSOUNDER	J.R.C.	JFE-582
GPS 1	J.R.C.	JLR-7700 MKII
GPS 2	J.R.C.	JLR-7700 MKII
V.D.R.	J.R.C.	JCY-1700
SPEED LOG	J.R.C.	JLN-205

2.9 The Voyage data recorder was last shore serviced by an approved shore technician from AAGE HEMPEL CRAME in Cadiz, Spain on the 29th December 2013. The shore service company was classed approved until 6th February 2016.

2.10 No VDR data was stored/saved due to black out and loss of power during the accident.



Figure 2.2 – Bridge Communication equipment



Figure 2.3 – Navigational bridge

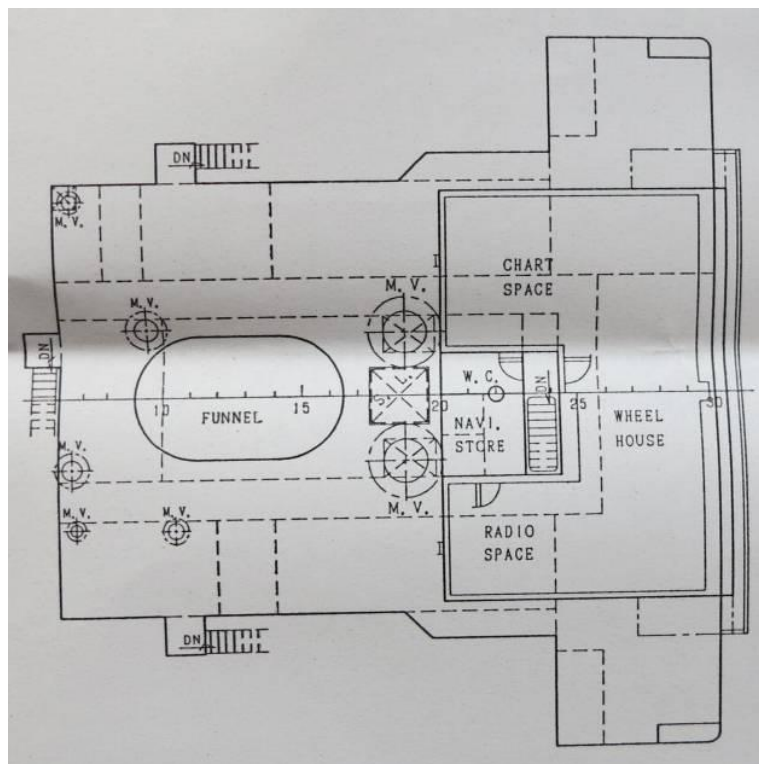


Figure 2.4 – Navigational Deck plan



Communication Equipment

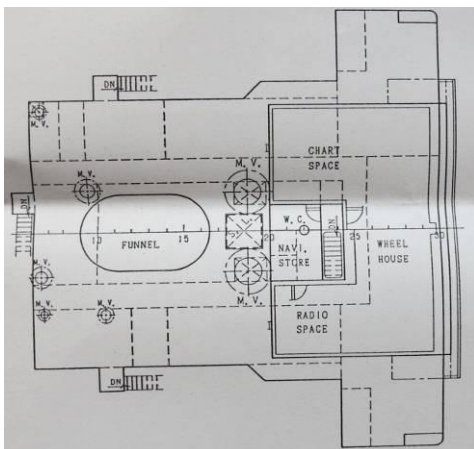
2.11 The vessel was fitted with the following communication equipment on the bridge

Equipment / S/N No.	MANUFACTURE	TYPE
2 VHF	J.R.C.	JHS-32B
2 DSC VHF	J.R.C.	JHS-32B
3 TWO WAY VHF	J.R.C.	JHS-7
RTF	J.R.C.	JSS-296
MF7HF7DSC	J.R.C.	JSS -296/NCT196
NAVTEX	J.R.C.	NCR-333
SATCOM C/SSAS	J.R.C.	JUE-75C
SATCOM F	J.R.C.	JUE-410F
UHF	J.R.C.	JHS-430
WEATHER FAX	J.R.C.	JAX-9A
FAX	J.R.C.	JAX-831

Superstructure and Accommodation

- 2.12 The superstructure raises four (4) decks above the pop deck, including the navigational bridge.
- 2.13 The certificate of inspection of crew accommodations was last issued by INTERMARITIME CERTIFICATION SERVICES S.A. on behalf of the Panama Maritime Administration on 06th January 2011 with an expiration date on 22nd November 2014
- 2.14 The certificate was issued to the satisfaction of regulations in force in Panama, including the relevant provisions of ILO convention 68 and 92 for a maximum number of twenty two (22) crew members.
- 2.15 The Maritime Labour Certificate (MLC) was issued by Lloyds Register on the 08th May 2013 with expiration date on the 07th May 2018
- 2.16 Accommodation arrangements are as follows,

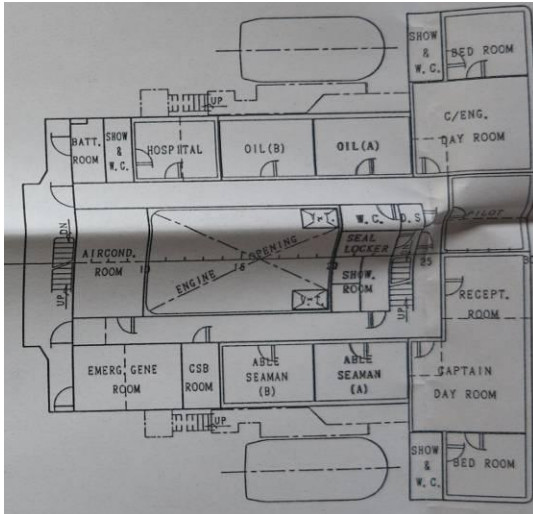
Navigational Deck



- Wheel House
- Radio Space
- Chart Space
- Locker



Captain Deck



Starboard side:

- Capt. Bedroom & WC
- Captain Day Room
- 2 x AB cabins
- Compressor Room
- Emer. Generator room
- AC Room
- Shower Room

Port side:

- Ch. Eng. Bedr. & WC
- Ch. Eng. Day Room
- 2 x Oiler cabins
- Hospital
- Shower & WC
- WC
- Locker

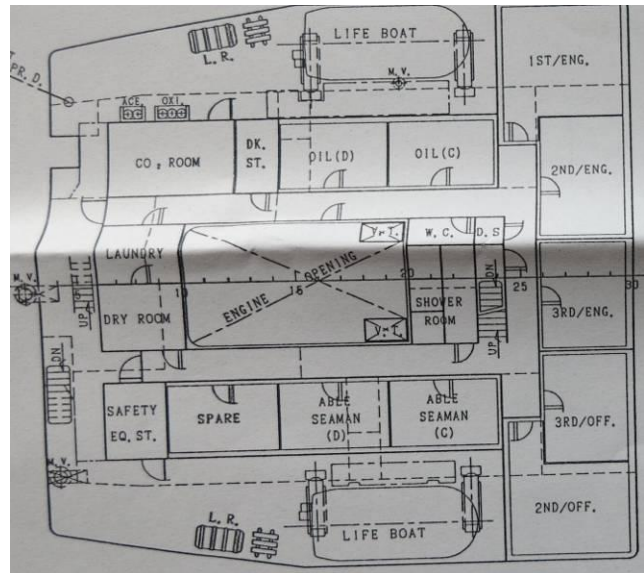
Boat Deck

Starboard side:

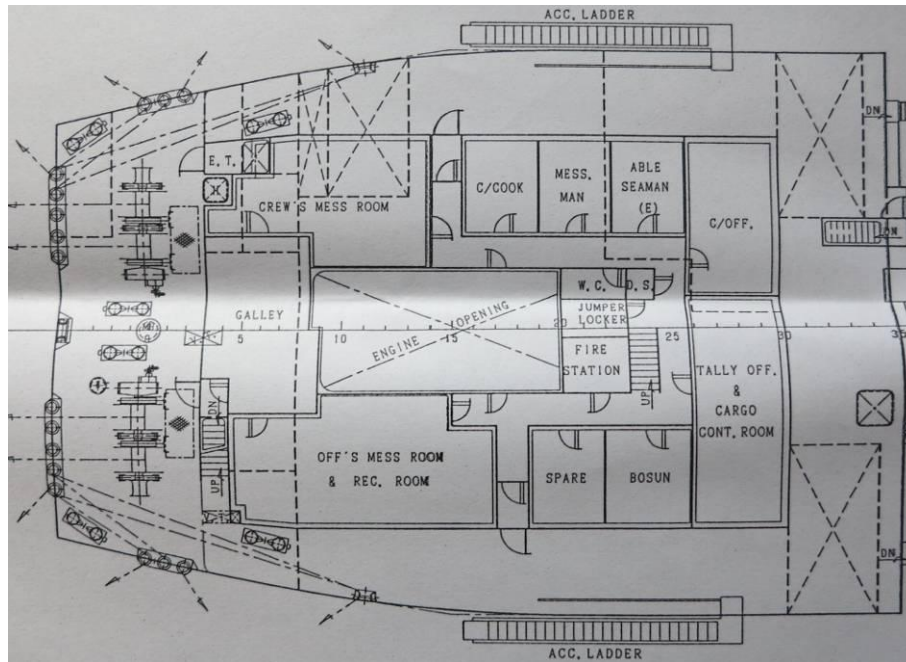
- 6 x Cabins
- Safety Equipment St.
- Dry Room
- Shower Room

Port side:

- 4 x Cabins
- Deck Store
- CO₂ Room
- Laundry
- WC
- Locker



Poop Deck



Starboard side:

- Tally and C.C.R.
- 2 x Cabins
- Officer Mess Room
- Fire station
- Galley

Port side:

- Chief Officer Cabin
- 3 x Cabins
- Crew Mess Room
- Galley
- Locker

Merchant Marine General Directorate

Department of Maritime Casualty Investigations

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CERTIFICATE NAME/ ID No.	ISSUED BY	ISSUED ON	EXPIRES ON
MINIMUM SAFE MANNING CERTIFICATE	P.M.A.	10.10.2013	-
CERTIFICATE OF REGISTRY	P.M.A.	07.10.2011	25.11.2016
INTERNATIONAL TONNAGE CERTIFICATE ITC-4344-07	P.M.A.	03.07.2007	-
SHIP RADIO LICENCE (35666-B)	P.M.A.	09.12.2011	08.12.2016
CERTIFICATE OF CLASS 064477	N.K.K.	15.12.2011	12.10.2016
INTERNATIONAL LOAD LINE CERTIFICATE	N.K.K.	15.12.2011	12.10.2016
CARGO SHIP SAFETY RADIO CERTIFICATE 11HO9456-SRC	N.K.K.	15.12.2011	12.10.2016
RECORD OF EQUIPMENT FOR THE CARGO SHIP SAFETY RADIO CERTIFICATE (FORM R) 11HO9456-SRR	N.K.K.	15.12.2011	-
CARGO SHIP SAFETY EQUIPMENT CERTIFICATE 14HO01004-SEC	N.K.K.	17.02.2014	12.10.2016
RECORD OF EQUIPMENT FOR THE CARGO SHIP SAFETY EQUIPMENT CERTIFICATE (FORM E) 14HO01004-SER	N.K.K.	17.02.2014	-
CERTIFICATE NAME/ ID No.	ISSUED BY	ISSUED ON	EXPIRES ON
CARGO SHIP SAFETY CONSTRUCTION	N.K.K.	15.12.2011	12.10.2016

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11HO9456-SCC			
INTERNATIONAL OIL POLLUTION PREVENTION (I.O.P.P) CERTIFICATE	N.K.K.	15.12.2011	12.10.2016
SUPPLEMENT TO THE INTERNATIONAL OIL POLLUTION PREVENTION (I.O.P.P) CERTIFICATE	N.K.K.	15.12.2011	-
INTERNATIONAL AIR POLLUTION PREVENTION (I.A.P.P) CERTIFICATE	N.K.K.	15.12.2011	12.10.2016
SUPPLEMENT TO THE INTERNATIONAL AIR POLLUTION PREVENTION (I.A.P.P) CERTIFICATE	N.K.K.	15.12.2011	-
SAFETY MANAGEMENT CERTIFICATE	N.K.K.	28.05.2012	14.04.2017
DOCUMENT OF COMPLIANCE CHE 1202021/G	N.K.K.	04.12.2012	16.12.2017
CLC OR OTHER FINANCIAL SECURITY – OIL POLLUTION NO. 23264	P.M.A.	16.01.2014	20.02.2015
CLC OR OTHER FINANCIAL SECURITY – BUNKER NO. B35888	P.M.A.	16.01.2014	20.02.2015
CERTIFICATE OF INSPECTION OF CREW ACCOMMODATION	INTERMA RITIME	06.01.2011	22.11.2014
INTERNATIONAL SEWAGE POLLUTION PREVENTION CERTIFICATE	N.K.K.	15.12.2011	
INTERNATIONAL CERTIFICATE OF FITNESS FOR THE CARRIAGE DANGEROUS CHEMICALS IN BULK 11HO9456-CHM	N.K.K.	15.12.2011	12.10.2016
MARITIME LABOUR CERTIFICATE 88O1301033	N.K.K.	08.05.2013	07.05.2018

3. SHORE ASSISTANCE INVOLVED

NAME	:	CAMBRILS
FLAG	:	SPAIN
PORT OF REGISTRY	:	Tarragona
OFFICIAL NUMBER	:	1-1/2003
CALL SIGN	:	ECDU
IMO NUMBER	:	9289283
TYPE	:	Tug
L.O.A.	:	29.500
L.B.P	:	28.000
BREADTH	:	11.000
DEPTH	:	4.000
G.R.T	:	369
N.R.T	:	111
DEAD WEIGHT	:	212

3.1 The vessel is powered by a nine (9) cylinder DEITZ AG - KOELN four strokes, type 2 x SBV9M628 single acting engine, which develops 2,030 kW at 1,000 rpm.



Figure 3.1 – CAMBRILS
 General view

NAME	:	GERNIKA
FLAG	:	SPAIN
PORT OF REGISTRY	:	Bilbao
OFFICIAL NUMBER	:	1-2/1994
CALL SIGN	:	EAKM
IMO NUMBER	:	9067283
TYPE	:	Tug
L.O.A.	:	30.150
L.B.P	:	28.000
BREADTH	:	11.000
DEPTH	:	4.000
G.R.T	:	330
N.R.T	:	0
DEAD WEIGHT	:	197

3.2 The vessel is powered by a eight (8) cylinder CONSTRUCCIONES ECHEVARRIA, four stroke, type 2 x 8R22/26 single acting engine, which develops 1,420 kW at 1,000 rpm.



Figure 3.2– GERNIKA
 General view

NAME	:	POBLET
FLAG	:	SPAIN
PORT OF REGISTRY	:	Tarragona
OFFICIAL NUMBER	:	1-1/2001
CALL SIGN	:	EBSD
IMO NUMBER	:	9211016
TYPE	:	Tug
L.O.A.	:	29.500
L.B.P	:	27.640
BREADTH	:	11.000
DEPTH	:	4.000
G.R.T	:	369
N.R.T	:	111
DEAD WEIGHT	:	536

3.3 The vessel is powered by a nine (9) cylinder DEUTZ AG - KOELN, four stroke, type 2 x SBV9M628 single acting engine, which develops 1,935 kW at 1,000 rpm.



Figure 3.3– POBLET
 General view

NAME	:	REMO
FLAG	:	SPAIN
PORT OF REGISTRY	:	Tarragona
OFFICIAL NUMBER	:	
CALL SIGN	:	EADW
IMO NUMBER	:	9513048
TYPE	:	Tug
L.O.A.	:	32.000
L.B.P	:	28.000
BREADTH	:	11.600
DEPTH	:	5.360
G.R.T	:	490
N.R.T	:	145
DEAD WEIGHT	:	768

3.4 The vessel is powered by a nine (9) cylinder WARTSILA FRANCE SA, four stroke, type 2 x 9L20 single acting engine, which develops 1,620 kW at 1,000 rpm.



Figure 3.4– REMO General view

NAME	:	HELIMER 201
MODEL	:	AW 139
TYPE	:	UTILITY HELICOPTER, AIR RESCUE
CREW	:	1 Pilot, (2 in Instrumental flight rules)
CAPACITY	:	15 persons or equivalent
LENGTH	:	13,77 m
Ø (Main Rotor)	:	13,80 m
HEIGHT	:	3,72 m
CIRCULAR AREA	:	149,57 m ²
CURB WEIGHT	:	3.622 Kg
LOADED WEIGHT	:	6.400 Kg

3.5 The helicopter was designed by Bell Helicopters and built by Augusta Westland. First flight in 2001. Power plant of 2 × Pratt & Whitney Canada turbo shaft PT6C-67C. Power of 1,142 Kw.



Figure 3.5– HELIMER 201 General view

4. SHORE EMERGENCY LOG

- 4.1 28/03/2014, 8:40 CCS Tarragona. Description: vessel SICHEM AMETHYST reported fire on board, in cabin 20 POB. Ship in ballast. Uncontrolled fire yet. Practical Watcher warns the same issue.



- 4.2 28/03/2014, 08:41 CCS Tarragona. Description: HELIMER 201, Salvamar Diphda, tugs REMO, Guernica, Cambrils, and Generalitat Fire Brigade are mobilized. Harbour Master, Head of the center, CNCS, CECAT, and CCS APT is being reported.



4.3 28/03/2014, 08:42 CCS Tarragona Description: Concerned vessel reported: UNCONTROLLED fire at the moment, can only communicate on VHF Ch. 16.

Struggling to attempt to extinguish fire. Captain from SICHEM AMETHYST is instructed to report conditions on board every 5 minutes.

4.4 28/03/2014, 08:54 AM CCS Tarragona Description: Harbour master from Maritime Rescue Control Tower takes control of operations.

4.5 28/03/2014, 08:55 AM CCS Tarragona Description: HELIMER 201 engine starts.

4.6 28/03/2014, 08:55 AM CCS Tarragona Description: Government Sub-delegation is being reported. Firefighters reported EQ: stand-by.

4.7 28/03/2014, 09:00 AM CCS Tarragona Description: HELIMER 201 takes off.

4.8 28/03/2014, 09:07 CCS Tarragona Description: CCS Barcelona informs that PUNTA MAYOR Remains mobilized ETA 4 hours.

4.9 28/03/2014, 09:07 CCS Tarragona Description: 112 are being notified for the mobilization of ambulances and fire brigades.

4.10 28/03/2014, 09:09 CCS Tarragona Description: Harbour Master orders to REMO and GUERNIKA to fight fire.

4.11 28/03/2014, 09:10 CCS Tarragona Description: Fire out of control. Tugs are instructed to cool the hot spots, where no are working, with water cannons.

4.12 28/03/2014, 09:12 CCS Tarragona Description: 9 firefighters from Generalitat on track.

4.13 28/03/2014, 09:14 CCS Tarragona Description: HELIMER 201, in line with ship.



- 4.14 28/03/2014, 09:15 CCS Tarragona Description: concerned vessel requests that, for the moment, no water cannons apply due to crew presence. Fire out of control. Vessel instructed for crew to be redirected to the evacuation zone: starboard side pilot ladder.
- 4.14 28/03/2014, 09:16 CCS Tarragona Description: Vulcan M ship is instructed to abort anchor maneuvering and to remain at 6'.
- 4.15 28/03/2014, 09:17 CCS Tarragona Description: On Level III PAU by Harbour Master.
- 4.16 28/03/2014, 09:17 CCS Tarragona Description: CAMBRILS tug alongside.



- 4.17 28/03/2014, 09:19 CCS Tarragona Description: Harbour Master ordered to evacuate people not involved on fire fighting.
- 4.18 28/03/2014, 09:20 CCS Tarragona Description: Fire is seen to increase. Harbour Master ordered to REMO and GUERNIKA to attack fire. Cool the area. SICHEM AMETHYST reports that the water jet upsets.



- 4.19 28/03/2014, 09:21 CCS Tarragona Description: Harbour Master OREDER Captain (SICHEM AMETHYST) IMMEDIATE EVACUATION of crew only remain on board Captain and Chief Engineer to help firefighters to be shipped.
- 4.20 28/03/2014, 09:24 CCS Tarragona Description: Harbour Master ordered to stop firefighting to tugs.
- 4.21 28/03/2014, 09:25 CCS Tarragona Description: SALVAMAR DIPHDA in the incident.
- 4.22 28/03/2014, 09:26 CCS Tarragona Description: SICHEM AMETHYST reports that proceeds to abandon ship.
- 4.23 28/03/2014, 09:27 CCS Tarragona Description: Harbour Master forbids using boats. They will use starboard ladder.
- 4.24 28/03/2014, 09:29 CCS Tarragona Description: SALVAMAR DIPHDA is ordered to proceed to the starboard ladder to proceed to evacuate people.



- 4.25 28/03/2014, 09:30 CCS Tarragona Description: HELIMER 201 landed in jetty heliport.
- 4.26 28/03/2014, 09:33 CCS Tarragona Description: SALVAMAR DIPHDA alongside. HELIMER 201 shall transfer firefighters on board.
- 4.27 28/03/2014, 09:34 CCS Tarragona Description: Harbour Master orders a responsible to stay to support firefighters. In principle, Captain will stay. The rest abandon ship.
- 4.28 28/03/2014, 09:37 CCS Tarragona Description: HELIMER 201 performs initial trip with 3 firefighters.
- 4.29 28/03/2014, 09:39 CCS Tarragona Description: SALVAMAR DIPHA is indicated that 18 people are to be rescued and 2 will remain on board. REMO and GUERNIKA are indicated to take precautions when disembarking.





- 4.30 28/03/2014, 09:43 CCS Tarragona Description: Harbour Master ordered that portable VHF should remain on board.
- 4.31 28/03/2014, 09:45 AM CCS Tarragona Description: Alfa ship ship agents are advised to prepare to host up to 20 people.
- 4.32 28/03/2014, 09:45 AM CCS Tarragona Description: Alfa ship is reported, they are instructed to manage Stella Maris or hotel for the evacuated crew.
- 4.33 28/03/2014, 09:48 CCS Tarragona Description: HELIMER 201 reports that there are 6 crew on deck. SALVAMAR DIPHDA reported to have only 12 on board.



- 4.34 28/03/2014, 09:50 CCS Tarragona Description: Finally 3 will remain on board. SALVAMAR DIPHDA should get 17 people.
- 4.35 28/03/2014, 09:54 CCS Tarragona Description: SALVAMAR DIPHDA reported to have 17 people on board, all OK, in principle.
- 4.36 28/03/2014, 09:55 CCS Tarragona Description: Sea Civil Guard requested information.
- 4.37 28/03/2014, 10:00 CCS Tarragona Description: HELIMER: Fire fighters + Rescuer onboard the concerned vessel.
- 4.38 28/03/2014, 10:01 CCS Tarragona Description: three firefighters and one rescuer from HELIMER 201 onboard. Harbour Master instructs tugs restart cooling tasks.
- 4.39 28/03/2014, 10:05 CCS Tarragona Description: SALVAMAR DIPHDA docked at pilot berth proceeds to disembark people.
- 4.40 28/03/2014, 10:06 CCS Tarragona Description: Fire located on port side cabin on the second deck.
- 4.41 28/03/2014, 10:08 CCS Tarragona Description: DIPHDA: docked at Pilot berth, crew evacuated. All in good health.



4.42 28/03/2014, 10:11 CCS Tarragona Description: REMO and POBLET tugs are along port side and CAMBRILS starboard side. GUERNIKA is Stand-by.

4.43 28/03/2014, 10:14 CCS Tarragona Description: SALVAMAR DIPHDA in area again.



4.44 28/03/2014, 10:15 CCS Tarragona Description: Rescuer reports that tugs are attacking the point just now.



4.45 28/03/2014, 10:16 CCS Tarragona Description: Rescuer reports that it has no links with firefighters.

- 4.46 28/03/2014, 10:18 CCS Tarragona Description: Harbour Master orders tugs to stop cannons.



- 4.47 28/03/2014, 10:20 CCS Tarragona Description: Chief Officer of SICHEM AMETHYST appreciates that the fire has been reduced.
- 4.48 28/03/2014, 10:21 CCS Tarragona Description: SALVAMAR DIPHDA in area.
- 4.49 28/03/2014, 10:29 CCS Tarragona Description: Inform Shore Firefighters base that there are 3 firemen on board, 3 crew and rescuer. Reports that, according to Chief Guard, fire can go to worse, to keep it in mind. Installation of 45mm mounted in the vessel, 4 more on the way with HELIMER 201. Total have 11 people on board. Harbour Master instructs to prepare reliever for those on board.
- 4.50 28/03/2014, 10:34 CCS Tarragona Description: HELIMER 201 informs the rescuer indicates that firefighters will proceed to enter the boat.

- 4.51 28/03/2014, 10:40 CCS Tarragona Description: Informs SALVAMAR DIPHDA that 4 firefighters are on the hatch side to prepare for action. Closed hatch.



- 4.52 28/03/2014, 10:41 CCS Tarragona Description: Rescuer calling, that Firefighters asked tugs to stop throwing water.
- 4.53 28/03/2014, 10:41 CCS Tarragona Description: Firefighters team attacking inside the vessel. Water cannon on stand-by.
- 4.54 28/03/2014, 10:47 CCS Tarragona Description: Firefighters reported that firefighters that will proceed to board the ship now are going to be added not to relieve.



- 4.55 28/03/2014, 10:48 CCS Tarragona Description: Pilots are instructed that vessels VULCAN M (097/2.7) and HISTRIA IVORY (088/3.3) proceed to their assigned anchoring position.
- 4.56 28/03/2014, 10:50 CCS Tarragona Description: Rescuer reports that firefighters on board will need two firefighters more and 8 air teams.
- 4.57 28/03/2014, 10:51 CCS Tarragona Description: HELIMER 201 reports carrying 12 bottles of air, 4 firemen and water.
- 4.58 28/03/2014, 10:53 CCS Tarragona Description: Situation on deck. Firefighters reported that the 1st Officer Cabin is extinguished; the intermediate also extinguished and will proceed to extinguish Captain Cabin.
- 4.59 28/03/2014, 10:53 CCS Tarragona Description: Harbour Master instructs to inform Tarragona Port Authority to manage berthing breakwater berth and to prepare a firefighter EQ team to remain on duty during the docking.
- 4.60 28/03/2014, 11:08 CCS Tarragona Description: The crew will stay in the SB EXPRES hotel



- 4.61 28/03/2014, 11:15 CCS Tarragona Description: Harbour Master orders to issue security message "to free VHF Ch. 16 to all nearby stations." CCR is requested to issue radio warning.
- 4.62 28/03/2014, 11:18 CCS Tarragona Description: HELIMER 201 reports: proceeds to Reus Airport to refuel and change of crew.
- 4.63 28/03/2014, 11:19 CCS Tarragona Description: Firefighters on board reported: in principle, extinguished fire in cabins, fire subsequently reactivated, will proceed to explore other areas.
- 4.64 28/03/2014, 11:21 CCS Tarragona Description: Shore Fire Chief: needs more teams on board and more ERA teams. SALVAMAR DIPHDA is instructed to return to Pilot berth the equipment.
- 4.65 28/03/2014, 11:23 CCS Tarragona Description: coastal CCR starts radio broadcast warning.
- 4.66 28/03/2014, 11:29 CCS Tarragona Description: It is requested to Port Control, Tarragona Port Authority berthing for PUNTA MAYOR. ETA: 14:00 UTC.
- 4.67 28/03/2014, 11:30 CCS Tarragona Description: HELIMER 201 in base.
- 4.68 28/03/2014, 11:30 CCS Tarragona Description: HELIMER 201 landed, requests if needs to return to the area: yes, he is instructed to refuel, relieve crew and return to concerned vessel.
- 4.69 28/03/2014, 11:36 CCS Tarragona Description: HELIMER is instructed that when returning to port, must land to load fans that are to be installed on board the concerned vessel.
- 4.70 28/03/2014, 11:38 CCS Tarragona Description: Firefighters inform that will proceed to board the HELIMER 201, 4 firefighters, 5 hoses, 8 bottles of air and material. They report that they want to use a blower to controllably change the air



- in the area of the fire in order to cool. Total 15 Firefighters: 11 Generalitat and 4 Chemical Park.
- 4.71 28/03/2014, 11:43 CCS Tarragona Description: The CNCS is requested to contact with the corresponding crew embassies.
- 4.72 28/03/2014, 11:45 CCS Tarragona Description: Unidentified vessel is sighted in the area. Fire Chief reports that it is a fire brigade zodiac.
- 4.73 28/03/2014, 11:48 CCS Tarragona Description: Fax emitted with CREW LIST of the concerned vessel.
- 4.74 28/03/2014, 11:50 CCS Tarragona Description: HELIMER 201 reported take off from Reus airport.
- 4.75 28/03/2014, 11:51 CCS Tarragona Description: Firefighters on board: Fire extinguished, controlled and contained, initiating ventilation phase.
- 4.76 28/03/2014, 11:54 CCS Tarragona Description: Tugs REMO and CAMBRILS report that will remain in the area. GUERNIKA and POBLET return to base.
- 4.77 28/03/2014, 11:54 CCS Tarragona Description: Shore Fire Chief confirms fire on board controlled.
- 4.78 28/03/2014, 11:55 CCS Tarragona Description: HELIMER 201 takes off from Reus.
- 4.79 28/03/2014, 12:02 CCS Tarragona Description: HELIMER 201 flying over anchorage proceeds to land on breakwater heliport. Informs start: 11:50 UTC.
- 4.80 28/03/2014, 12:05 CCS Tarragona Description: DSN is being informed
- 4.81 28/03/2014, 12:07 CCS Tarragona Description: SALVAMAR DIPHDA sails from pilot berth, course to anchorage to support the operation.
- 4.82 28/03/2014, 12:08 CCS Tarragona Description: HELIMER 201 takes off from breakwater heliport.



- 4.83 28/03/2014, 12:12 CCS Tarragona Description: Fire chief informs: FIRE EXTINGUISHED, Harbour Master instructs to leave retention of 3 (Sergeant + 2 firefighters) to monitor possible fire reactivation.
- 4.84 28/03/2014, 12:13 CCS Tarragona Description: Sent SITREP.
- 4.85 28/03/2014, 12:14 CCS Tarragona Description: Harbour Master instructs to SALVAMAR DIPHDA to return to collect Tarragona Harbour Inspector, who will go onboard in order to certify fire extinguished and check condition of the facilities necessary to entry-berthing manoeuvring into port of the vessel.



- 4.86 Note: all Photos in Chapter 4 were gathered from internet from *SALVAMENTO MARITIMO* and *BOMBERS DE LA GENERALITAT*



5. INTERVIEWS

- 5.1 Officers and Interviews with the crew were carried out on the 31st March 2014 in presence of the following parties;

Person's Name	Representing
Marta Rodriguez	Spanish Investigation Commission

- 5.2 The following crew were directly involved and interviewed;

Person's Name	Representing
Rey Bronzal Palmes	Master
Francisco Jr Varon	Chief Engineer
James Dumbrique	2nd Officer
Charito Bolaño	3rd Officer
Rahul Sharma	3rd Officer



6. NARRATIVE OF EVENTS

5.1 All times noted in this report are given in the style of the standard 24-hour clock without additional annotations. Ship times used onboard were local times in Tarragona, i.e. UTC +2.

5.2 Narrative of events is taken herewith based on crew statements gathered during the interviews.

5.3 Bridge Team

Master: Holding a valid Master II/2 COC valid for the type of ship serving issued by the administration of Philippines and Panamanian endorsement valid to 23rd May 2015. He joined the ship on the 17th January 2014 and has been working as a Captain for two (2) years

Chief Officer: Holding a valid Master II/2 COC valid for the type of ship serving issued by the administration of Philippines and Panamanian endorsement valid to 31st December 2016. He joined the ship on the 19th June 2013 and has been working as a Chief Officer for over four and a half (4.5) years.

2nd Officer: Holding a valid watch keeping officer II/2 COC valid for the type of ship serving issued by the administration of Philippines and Panamanian endorsement valid to 16th March 2014. He joined the ship on the 27th May 2013 and has been working as a 2nd Officer for over three and a half (3.5) years

3rd Officer: Holding a valid watch keeping officer II/2 COC valid for the type of ship serving issued by the administration of Philippines and Panamanian endorsement valid to 25th October 2015. He joined the ship on the 24th March 2014 and has been working as a 3rd Officer for sixteen (16) months.

3rd Officer: Holding a valid watch keeping officer II/2 COC valid for the type of ship serving issued by the administration of Philippines and Panamanian endorsement valid to 16th April 2016. He



Joined the ship on the 10th February 2014 and has been working as a Captain for over one (1) month.

Chief Engineer: Holding a valid watch keeping officer III/2 COC valid for the type of ship serving and no power limitation issued by the administration of Philippines and Panamanian endorsement valid to 07th February 2015. He joined the ship on the 17th January 2014 and has been working as a Chief Engineer for four (4) years

5.4 Weather condition at the time of the incident:.

Wind:	4/5
Sea and Swell:	2/4 m
Weather:	Clear
Visibility:	Good and Clear

5.5 The vessel sailed from the port of Fos, France on the 26th March 2014.

5.6 Engine room was informed to prepare the engine on the 26th March 2014 at 20.30 hours

5.7 Pilot got away from the vessel on the same day at 22.30 hrs and the vessel commenced her voyage destined to Tarragona, Spain

5.8 On the following day, 27th March 2014 the vessel stopped the engine and drifted from 13.48 hours to the following day at 02.12 hrs.

5.9 At 18.00 hrs the engineers, including the chief engineer were involved in a repair of the bow thruster transmitter until 21.30 hrs.

5.10 At 05,00 hrs the engine room was given a one hour notice prior arrival to Tarragona roads.



- 5.11 The vessel arrival to anchorage and let dropped the anchor on the 28th March 2014 at 06,06 hrs.
- 5.12 Upon arrival it was scheduled to bunker while in anchorage and while waiting for the Terminal to give the green light for berthing.
- 5.13 At 09.20 hrs the bunker barge arrived alongside the SICHEM AMETHYST and moored.
- 5.14 By 09, 22 hrs the bunker barge cast off due to high swell of about two (2) metres that made the ship to ship transfer operation not safe hence decided to postpone bunkering.
- 5.15 Immediately the Master advised on VHF port control about the failure in taking bunkers and Master was advised to heave up the anchor and prepare the engine since it was decided that the SICHEM AMETHYST would berth immediately following Terminal's advice.
- 5.16 The Master advised the OOW (3rd officer) to give notice to the engine room as well as preparing the ship to take pilot and meanwhile he would take a shower on his cabin.
- 5.17 While getting out of the shower, the Captain heard the general alarm and quickly dressed to go immediately to the bridge.
- 5.18 When opening his door there was a lot of irritating smoke.
- 5.19 The Captain went to the bridge and silenced the general alarm to make an announcement through the P.A. system.
- 5.20 All crew mustered and head count was made.
- 5.21 Two teams dressed on their fire outfit with two (2) outfits each.
- 5.22 Within five (5) minutes while on the bridge a lot of smoke entered and fullfilled the navigational bridge.



- 5.23 The Master called the Harbour Master and at the same time had to leave the bridge due to smoke.
- 5.24 They took the emergency VHF's and went to the starboard bridge wing
- 5.25 Meantime the Chief Officer was organizing the teams to fight the fire.
- 5.26 Harbour Master immediately asked the Captain to abandon the ship. Master refused and confirmed that all crew would remain onboard fighting the fire.
- 5.27 Harbour Master asked the captain to lower the pilot ladder on the starboard side.
- 5.28 Minutes after tugs arrived near the SICHEM AMETHYST.
- 5.29 Meantime the Master was in close communication with the Chief Officer who confirmed they could not fight the fire due to heat inside the accommodation deck.
- 5.30 Harbour Master confirmed on VHF they would fight the fire from the tugs.
- 5.31 At that stage the Master confirmed that all crew would remain in their positions trying to fight the fire.
- 5.32 The Chief officer and Chief engineer were on top of the starboard lifeboat trying to insert a fire hose through the Chief Engineers WC natural ventilation opening.

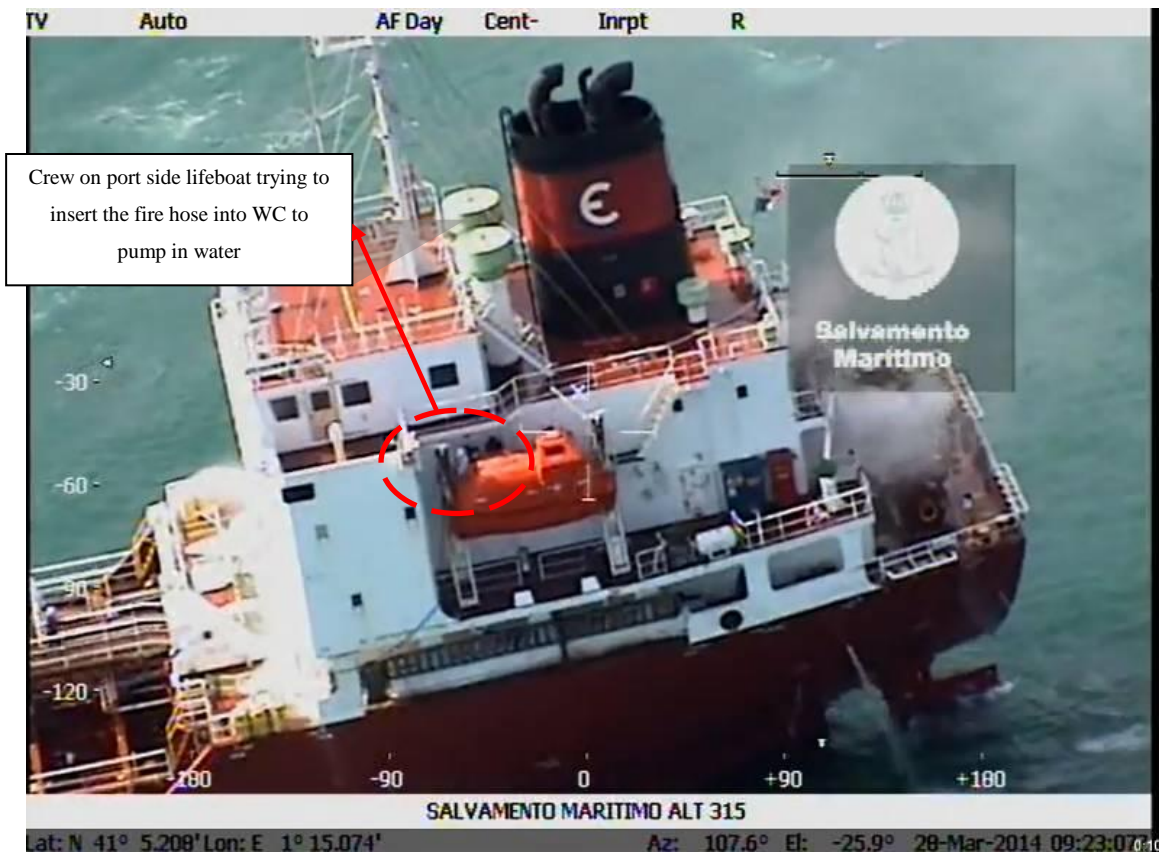


Figure 5.1– Photo from SALVAMENTO MARITIMO

- 5.33 Tugs approached the vessel the firefighting cannons under pressure and pointing towards the superstructure aft and superstructure port side.

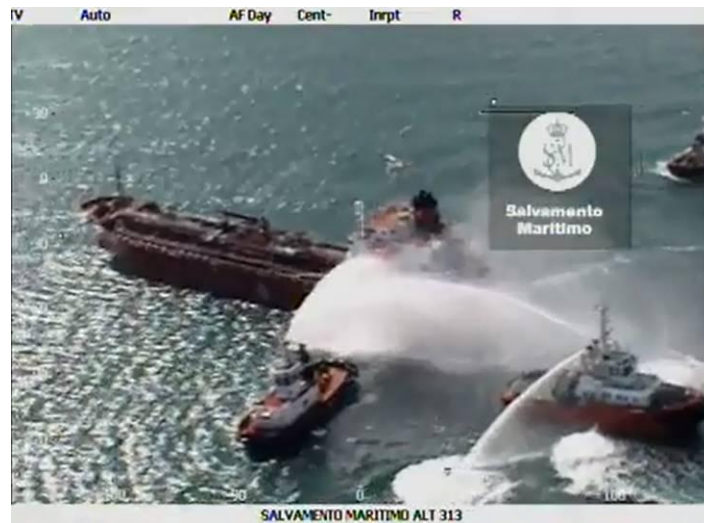


Figure 5.2– Photo from SALVAMENTO MARITIMO

- 5.34 In view that the water jets were approaching the 2nd officer advised the Chief Officer and the Chief Engineer to leave the boat since it could present a hazard to them.
- 5.35 Mean time the crew on the aft of the Captain’s deck was evacuated since one of the water jets coming from one the tugs was pointing to them.
- 5.36 Chief Officer reported to the Master that no more breathing air bottles were available.
- 5.37 No breathing bottles could be refilled due to smoke in the surroundings of the compressor room.
- 5.38 A number of crew were disembarked through the pilot ladder.
- 5.39 Meantime a first team of fire fighters arrived by helicopter.
- 5.40 The Master showed them the location of the fire and the access points on the fire plan.

- 5.41 A first approach was made by the fire fighters using ships fire hoses and their own fire outfits and equipment.
- 5.42 Within twenty minutes a second team of fire fighters arrived onboard by helicopter.
- 5.43 Shore fire fighters went inside the Captain’s deck through the port side door.





- 5.44 Shore fire fighters extinguished the fire declaring it extinguished at 12,12 hrs on the 28th March 2014.
- 5.46 Once the fire was extinguished the Harbour Master allowed the vessel to be towed into the port of Tarragona outer quay





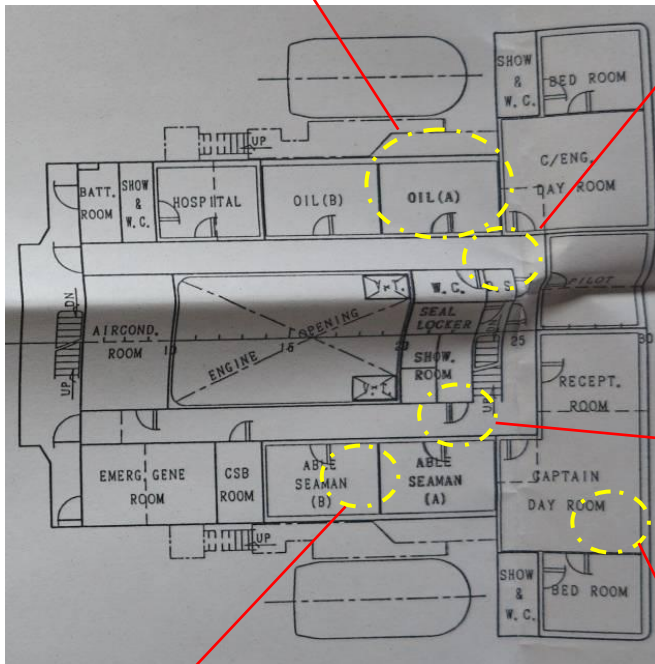
- 5.47 The towing was made with only the Captain, Chief Officer, Chief Engineer, Pilot and firemen onboard.
- 5.48 Maneuvering and marring handling was assigned to the fire fighters.

7. DAMAGES

7.1 The main damages were located in the Chief Engineers Cabin and office.



7.2 Damages extended along the Captains deck due to heat



- 7.3 Further damages extended on the electrical systems which led to a black out. At the time of the investigation electrical damage extend was being investigated by engineers and technicians.
- 7.4 Navigational equipment had been stopped during the accident due to black out and hence pending of evaluation until power is restored.
- 7.5 The Captain’s Deck was finally repaired and put back in service on the 27th April 2014



Figure 7.1– Repaired Chief Engineer’s Cabin



Figure 7.2– Repaired Chief Engineer’s Office



Figure 7.3– Repaired Chief Engineer’s Office



Figure 7.4– Repaired cabling in Captain’s deck



Figure 7.5– Repaired cabling in Captain’s deck



Figure 7.6– Repaired Captain’s deck



Figure 7.7– Repaired fittings in Captain’s deck



Figure 7.8– Repaired Captain’s deck

Figure 7.9– Repaired Captain’s Office



Figure 7.10– Repaired Captain’s Office





8. ANALYSIS

Thermal conductivity

- 8.1 Thermal conductivity (k) is the measure of heat that could travel across an area with a temperature gradient. The measure is expressed as one degree per unit of length (W/m K).
- 8.2 Heat capacity is the measure of the energy required to raise the temperature of an object for one (1) degree of a unit mass (J/kg-K)
- 8.3 Table below shows the thermal properties of a number of selected materials. Such table shows that plastics and foam materials have a low density and a low thermal conductivity, so when exposed to heat, the surface temperature increases quickly. On the other hand metals have a high thermal conductivity and a high density hence the surface temperature of the metal increases more slowly when exposed to the same source of heat.
- 8.4 Paper has an even lower thermal conductivity value of 0.05.

Material	Thermal Conductivity (k)(W/(m K))	Density (ρ)(kg/m ³)	Heat Capacity (c)(J/kg-K)	Thermal Inertia (ρc) (W ² x s/k ² m ⁴)
Copper	387	8940	380	1.31E+09
Concrete	0.8–1.4	1900–2300	880	1.34E+06–2.83E+06
Gypsum plaster	0.48	1440	840	5.81E+05
Oak	0.17	800	2380	3.24E+05
Pine (yellow)	0.14	640	2850	2.55E+05
Polyethylene	0.35	940	1900	6.25E+05
Polystyrene (rigid)	0.11	1100	1200	1.45E+05
Polyvinylchloride	0.16	1400	1050	2.35E+05
Polyurethane*	0.034	20	1400	9.52E+02

*Typical values and properties vary with temperature. Source: Drysdale (1999).

Figure 8.1 – Conductivity values



- 8.5 As materials are heated, the surface of the material begins to absorb heat that is then transferred through the remainder of the material mass as conduction. The speed at which an object surface absorbs heat is determined by its thermal inertia and the thickness of the material.
- 8.6 Thinner materials tend to ignite faster than thicker materials. This effect has a direct impact on ignitibility and flame spread.
- 8.7 Therefore it is probable that paper or plastic was the first to heat and got on fire.

Fuel Load

- 8.8 The amount of fuel present is referred to as fuel load.
- 8.9 The materials consumed during the fire are referred to as the fuel item.
- 8.10 When fuel items are assembled and placed close to each other, a fuel package is created.
- 8.11 The fuel packages on chief engineer's cabin and office included the following:
Furniture and other bedroom contents
Personal items and clothes
Combustible raw materials such as paper from reports and manuals.
- 8.12 The fuel package located on the chief engineer's bedroom close to the forward bulkhead panel would have had the air entrainment restricted and hence would have had a temperature in the upper layer as seen on thicker carbon deposits on the forward window.

Heat Release Rate

8.13 The heat release rate is a measure in kW as given in the following table.

Fuel	Weight		Peak HRR (kW)
	kg	lb	
Wastebasket, small	0.7–6.1	1.5–3	4–50
Trash bags, 42 L (11 gal) with mixed plastic and paper trash	1.1–3.4	2 1/2–7 1/2	140–350
Cotton mattress	11.8–13.2	26–29	40–970
TV sets	31.3–32.7	69–72	120 to over 1500
Plastic trash bags/paper trash	1.2–14.1	2.6–31	120–350
PVC waiting room chair, metal frame	15.4	34	270
Cotton easy chair	17.7–31.8	39–70	290–370
Gasoline/kerosene in 0.185 m ² (2 ft ²) pool	19	—	400
Christmas trees, dry	6–20	13–44	3000–5000
Polyurethane mattress	3.2–14.1	7–31	810–2630
Polyurethane easy chair	12.2–27.7	27–61	1350–1990
Polyurethane sofa	51.3	113	3120
Wardrobe, wood construction	70–121	154–267	1900–6400

Figure 8.2 – Heat release rate TABLE

8.14 Based on the above table the peak heat release rate hence it could be estimated although in the enclosed room surrounded with steel boundaries and ceiling such values would have increased even further since the heat would have been radiated back on the burning items. This was evident from the buckling of the ceiling on the bedroom.



Figure 8.3 – Cabin ceiling buckled due to heat

Ignition

- 8.15 The destruction of the area gave no room for finding a clear evidence of the source of ignition although it is most probable that such ignition was of a piloted type.
- 8.16 Sparks, arcs and open flames are the common sources of piloted ignition in which an external ignition source ignites the fuel item. Such fuel item could have been sheets of paper, manuals or plastic.
- 8.17 To heat the fuel item to its ignition temperature, the rate of heat transfer must overcome the rate of the heat loss due to convection or conduction as well as the loss of the energy as a result of pyrolysis or vaporization
- 8.18 The first alarm was given at 09.40hrs and the onboard clocks were stopped due to loss of power at around 09 hrs 41 min 45 sec.



Figure 8.4 – Captain clock stopped



Figure 8.5 – Bridge clock stopped

Compartment Fire Spread

- 8.19 During a compartment fire, super-heated gases and smoke rise and are confined by the ceiling. As the temperature at ceiling level rises, the radiant heat created begins to accelerate the rate of fire spread as well as the rate of heat release of the burning fuel items. At that stage of the fire compartment no detection was possible since the nearest smoke detector was built outside the Chief Engineers office.
- 8.20 Once floor to ceiling flames are produced, the fire begins to grow quickly and the ceiling layer temperature continues to rise reaching temperatures of 600°C. At this point convected and radiated heat energy impinges on the other fuel items with the cabin and the office rooms producing fire gases which ignite.
- 8.21 Shore fire fighters who entered the area on fire described flames mixed with smoke on the ceiling on the passageway coming from the chief engineer's office.
- 8.22 Melting of plastic material near the ceiling in the captain deck passageway and onto the captain's office was evident. That gives an indication that high temperatures over 300°C were reached along the passageway and the captain's office. Therefore the lack of shore fire fighters would have at some stage extend the fire to other areas of deck.



Figure 8.6 – Melting of plastic on fire alarm



Figure 8.7 – Melting of speakers in Captain office

- 8.23 Steel paneling on the chief engineer's cabin was buckled and deformed clearly due to heat exposure hence giving an indication that temperatures above 528°C.
- 8.24 Smoke deposits were evident in walls and surfaces along the captain's deck, captain office and captain cabin denoting that the door leading to the captain office was left open.



Figure 8.8 – Captain Office Smoke deposits



Figure 8.9 – Captain Office Smoke deposits

Fire Fighting

- 8.25 The following comments were gathered from shore fire fighter: Hose with no sufficient pressure and water flow not able to be controlled efficiently. Hence the uncontrolled flow of water had created superheated steam.
- 8.26 The type of fire nozzle onboard was of a standard type found on ships.



Figure 8.10 – Type of fire nozzle used

- 8.27 The aft natural ventilation duct broken by crew to flood the toilet with water with a fire hose. Water would have mostly drain through toilet floor drains.



- 8.28 Tugs pointing the large fire canons towards the crew had presented a potential hazardous situation to the crew trying to assist the onboard emergency teams and the crew on top of the port side lifeboat trying to
- 8.29 The vessel is fitted with an electrically driven compressor to fill breathing apparatus bottles. The compressor is fitted within a safety locker next to the emergency generator room.
- 8.30 Since the vessel had the anchor down and all crew were busy mustering and fighting the fire no maneuvering or ship change of course could be effected hence smoke concentrations in way of the compressor locker where the B.A. compressor is on the starboard side made it impossible to fill up more bottles.
- 8.31 The impossibility to re-fill BA bottles made the crew to end up with no filled bottles and hence unable to enter the interior of the superstructure to continue to fight the fire.

Fire Fighting Equipment

- 8.32 All the fire fighting equipment onboard was of an approved type although a number of issues or hazards were identified.

Firefighting outfit

- 8.33 The fire suit available onboard were manufactured by NIHON KYUMEI KIGU CO. LTD, type TN-6 one piece, aluminum coated made on year 2006, serial number 185 and suitable for a maximum height of 185 cm and a maximum waist of 120 cm.

- 8.34 The suit holds several warning instructions on the interior:

Danger: Do not go near to high temperature flames even if this firefighting suit for ship model TN-6 is put on, because this suit is designed for initial fire fighting. Unless it is in danger of death.

- The 3rd Officer entering the captain deck to fight the fire reported feeling the heat intensively inside the suit.

- Such type of suit is designed to reflect flame radiation but not heat, hence the reason why the manufacturer warns that cannot be used near flames and within enclosed spaces under fire.

Danger: Do not continue firefighting activity for more than 15 minutes putting on this suit. Under a long time firefighting activity, it is apt to suffer heat stress and in the worst case, it is danger of death.

Instructions to be maximum for 15 minutes with the suit on are not compatible with a normal firefighting operation.



Figure 8.11 – Type of fire outfit used onboard

- 8.35 No shore fire fighters use this type of fire suits hence the professional advise of shore fire fighters should be addressed.
- 8.36 The fact that long firefighting can cause death hence denotes that the suit is not suitable for ship fires on enclosed spaces. This was proved by the 3rd Officer who claimed that he was not capable to approach and remain in the chief engineer’s office for long due to heat.



Warning: Take care of the fire blowing, because this food lens is unable to prevent the heat spite of the fireproofed material. It is danger of face burn.

- 8.37 This statement above also proofs that such type of fire suit is not suitable for normal fire fighting on enclosed spaces.
- 8.39 The aluminum coated gloves are of a mitten type with a finger on the side. That type of gloves makes more complicated handling of hoses, feeling of surroundings opposed to a five finger glove.
- 8.40 The complete fire suit was inspected by a shore company in Portugal on the 26th December 2013 certifying that the suits were in good condition and fit for work.
- 8.41 Neither of the fire line guides was used.
- 8.42 The use of fire lines are questionable when entering accommodation and enclosed or obstructed areas since the line could get trapped endangering the fire fighter.



Figure 8.12 – Type of fire line guides not used

Breathing air apparatus

- 8.43 The KAWASAKI, LIFE GEM type breathing apparatus used onboard worked correctly during the fire fighting
- 8.44 The type was described by shore fire fighters of being of an old and unreliable.
- 8.45 All compressed bottles were used but not being capable of being refilled since the compressor room and surrounding area had been filled up with smoke.

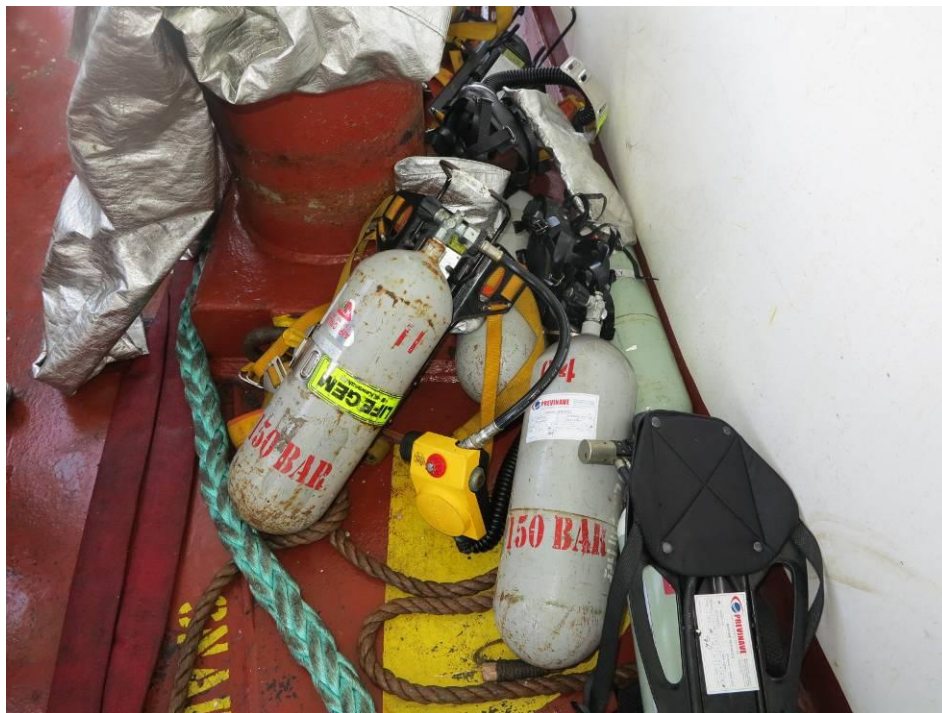


Figure 8.13 – Type of B.A. used onboard

Breathing Air Compressor.

- 8.46 The compressor is housed on the captain's deck starboard side within the compressor room which also houses fire man outfit and fire spare parts and extinguishers.
- 8.47 The compressor is fixed on deck on the end bulkhead in from of the entrance door.
- 8.48 The compressor is fitted with a 3 meters rubber air intake hose to ensure optimum fresh air supply.
- 8.49 It was reported by the crew that the compressor could not be used due to heavy smoke entering the room from the inside.
- 8.50 The lack of wind and the fact that the vessel's course could not be changed since vessel was in anchorage contributed to smoke building up around the captain's deck. Such smoke entered the compressor room and hence fresh air could be collected to refill breathing air bottles
- 8.51 The compressor had been last shore serviced in Portugal on the 26th December 2013 and air analysis was issued with satisfactory results.



Figure 8.14 – Type of B.A. compressor



Electrical elements

- 8.52 The winding insulation in a transformer may deteriorate after an extended use. As the wiring deteriorates, the impedance drops and more current flows which in turn generates more heat. This can lead to severe heating, which can cause the windings to fail by melting or create a ground fault.
- 8.53 The heat that is generated may ignite the winding insulation or combustibles in the vicinity of the transformer.
- 8.54 However if the transformer is encased in steel like the one found on the chief engineer's cabin, it is unlikely that temperatures could not be hot enough to ignite nearby combustibles.
- 8.55 Loose-fitting plugs can create a resistive heating connection, potentially causing a fire.
- 8.56 Plastic housings or housings made from carbon and other elements are used in appliances that do not normally operate.
- 8.57 Plastic can melt at low temperatures. Once ignited some plastics will continue to burn on their own once ignited.
- 8.58 Battery chargers are a possible ignition source.



9. HUMAN ERROR ANALYSIS

- 9.1 Although there is there is no direct relation of human error with the cause of the fire, a contributing factor on fatigue could be consider and further analyzed.
- 9.2 The most common cause of fatigue among crew is of lack of sleep and poor quality of rest among other causes.
- 9.3 Lack of sleep could have impaired Chief Engineer's alertness while on his cabin.
- 9.4 Rest hours were said to be maintained, the Chief engineer reported to be tired on the 28th March 2014 due to the work scheduled prior the fire started.
- 9.5 Poor quality of sleep occurs when Chief Engineer's sleep was interrupted several times for the following reasons,
- 27th March 2014
 - 12.30 hrs one hour notice for drifting
 - 18.00 hrs works started on bow thruster until returning to bed at 22.30 hrs
 - 28th March 2014
 - 01,30 hrs one notice to resume voyage
 - 08.00 hrs thirty minutes notice of arrival of bunker barge
- 9.6 It is generally recommended that a person obtains on average 7 to 8 hours of sleep in a one day period and chief engineer reported to have had poor sleeping quality being interrupted several times to supervise the repair of the electrical panel of the bow thruster and for drifting and resume of voyage prior arrival to Tarragona roads.
- 9.7 Such lack of sleep could have impair chief engineer's alertness when handling goods on his cabin such as:
- Re-chargeable batteries wrongly connected since it was reported that batteries were left under charge prior leaving the cabin.
 - Not capable to feel any unusual heating or observe any hot spots within the room on and under the table.
 - Unmortified spilling of liquid leading to a short circuit.



10. CONCLUSIONS

- 10.1 Super-heated gases and smoke rise and are confined by the ceiling at the early stages of the fire. Should there have been a smoke or heat detector fitted on the room or the office, early fire detection would have given the opportunity to fight the fire at early stages.
- 10.2 The fire seemed to be accidental and hence not as a result of a delivered (intentional) act.
- 10.3 Since the cause of the fire could not be proven to an acceptable level of certainty hence can be assumed as an undetermined fire.
- 10.4 The ignition source was at the point of origin when the fire started on the chief engineer's cabin table. The fire started on the electrical connections on the table or under the table from the transformer.
- 10.5 Although questionable, there might have been a relation with the interrupted sleep of the chief engineer and the fact that he left the cabin with an appliance wrongly plugged. The last appliance to be handled prior leaving the cabin was the battery charger for AA-batteries.
- 10.6 The compressor could not be used since smoke entered the room and was present in the surroundings of the compressor room hence it was not possible to fill up breathing bottles.
- 10.7 The fire fighter (3rd Officer) reported not being able to approach the room and stay long near the fire which proved that such type of fire outfit is not suitable for enclosed space fires.



- 10.8 The type of fire hose nozzle could not control the volume of water at the beginning of the firefighting hence large amounts of superheated steam is created.
- 10.9 A large percentage of ships used the International Marine Purchasing Association (IMPA) marine stores guide and such guide does include solely aluminum type fire outfits.
- 10.10 The vessel had two (2) sets of master keys. One with the Chief Engineer left on the cabin on fire and one with the Captain left on his office left behind when leaving his cabin towards the bridge.



11. RECOMMENDATIONS

To Operators:

- 11.1 Consider including such fire as a possible case study of fatigue related and create a report to be discussed on fleet's safety meetings.
- 11.2 Keep a log or records on transformers and other appliances onboard as to ensure that all appliance's history is fully known by the incoming responsible person.
- 11.3 Any transformers and vessel's appliances with a long service history to be internally/externally inspected by the electrician.
- 11.4 Limit the amount of external electrical appliances onboard.
- 11.5 Consider having a third set of keys or one set always to be kept locked on the bridge for emergencies.
- 11.6 Consider purchasing a proper type of complete fire outfits suitable for enclosed spaces prone to built up high temperatures
- 11.7 Purchasing of different type of fire hose nozzles capable to control the volume of water hence controlling the amount of superheated steam generated.



To Panama Maritime Administration

- 11.8 Issue a safety advisory in regards to fire fighting protective clothing similar to the notice MSN 040 issued by the administration of Isle of Man Ship Registry on 19th October 2012.

To Spanish Administration. Marine Investigation Committee

- 11.9 Investigate deeply oby the Harbour Master and the orders given to tugs to throw water jets towards the accommodation superstructure while crew were trying to fight the fire.



12. ANNEXES

- 12.1 *Crew list***
- 12.2 *Master Report as presented to Court***
- 12.3 *Bridge Log Book***
- 12.4 *Bridge Bell Log***
- 12.5 *Engine Log Book***
- 12.6 *Certificate of Inspection of Crew Accommodation***
- 12.7 *Last Alcohol Test carried out onboard***
- 12.8 *Fire Equipment Inventory***
- 12.9 *Compressor Air Quality Test***
- 12.10 *Fire Man Outfit Shore service Certificate***
- 12.11 *Fire Equipment Shore service Certificate***
- 12.12 *Ship Safety Cargo Equipment & Form E***
- 12.13 *Fire Drill Schedule***
- 12.14 *Fire Plan used***
- 12.15 *Muster List***
- 12.16 *MANX Marine Notice referring to Fire outfits***



12.1 Crew list

CREW LIST

Arrival Departure Page No.1

1. Name of ship M. T. SICHEM AMETHYST		2. Port of Arrival Tarragona, Spain		3. Date of Arrival : 28.03.14			
4. Nationality of the ship PANAMA		5. Next Port: Tunis, Tunisia		6. No. And Nature of identity document			
7. No.	8. Family name, Given names, Middle Name	9. Rank or rating	10. Nationality	11. Date and Place of Birth	12. Date and Place of Sign on	Seaman Records Book w/ place and expiration date	Seaman Passport with Place And Expiration Date
1	Palmes, Rey Bronzal	Master	Filipino	14 Jan '72 Wao Lanao DS	27 Dec '13 Setubal	C0128962 Iloilo/05 Sep '18	EB1750332 DFA Iloilo/18 Jan '16
2	Ladaga, Andrew Abarado	C/Off	Filipino	26 Nov '66 Valencia, Bohol	19 June '13 Savona	B0796914 Manila/24 Nov '14	EA0015662 DFA Manila/17 Dec '14
3	Dumbrique, James Ceasard Flores	2/Off	Filipino	04 Apr '87 Sta. Ana, Cagayan	16 July '13 Ruisbroeck	B1061801 Manila/16 Aug '16	EB7204135 DFA NCR West /20 Jan '18
4	Bolano, Charito Gaudicos	3/Off	Filipino	14 th June 84 Bohol	24, Mar '14 Lavera	C0091269 Manila/24 Jun '18	EB9835159 DFA CEBU/ 16 Dec '18
5	Sharma, Rahul	3/Off	Indian	15 Sep '87 Mumbai-M.S	11 Feb '14 Ruisbroeck	MUM173556 Mumbai/14 Jun '20	F3783740 Thane/22 Jun '15
6	Rivera, Francisco Jr Varon	C/Engr	Filipino	02 Feb '56 Manila	17 Jan '14 Antwerp	B1299698 Manila/22 Jan '18	XX5338201 DOFA Manila/21 Jan '15
7	Paldas, Eliseo Asencio	1/Engr.	Filipino	18 Oct '64 Iloilo	27 Dec '13 Setubal	B1040907 Manila/02 Jul '16	XX4927300 DOFA Manila/09 Nov 14
8	Canon, Restile Flores	2/Engr.	Filipino	01 Oct '79 Sogod, southern Leyte	24, Mar '14 Lavera	C0189741 Iloilo/27 Jan '19	EC0140503 DFA ILOILO/27 Jan '19
9	Aguinaldo, Arthur Bagoisan	3/Engr.	Filipino	26 Jun '79 Laoag City	17 Jan '14 Antwerp	B0973550 La Union/22 Feb '16	EB2179179 DFA La Union/04 Apr '16
10	Chinnakaliapan, Siva Ganesh	4/Engr.	Indian	29 May '89 Madurai	11 Feb '14 Ruisbroeck	MUM174430 Mumbai/04 Jul '20	H7660297 Madurai/25 Nov '19
11	Arevalo, Jovinal Jr Nabua	Bosun	Filipino	10 Apr '68 Quezon City	04 Feb '14 Safi	B0928535 Manila/05 Oct '15	EB1029148 DFA Iloilo/26 Sep '15
12	Luchavez, Francisco Lorenzana	A/B1	Filipino	05 Feb '68 Ormoc Leyte	17 Jan '14 Antwerp	B0924042 Tacloban /12 Dec '15	EB1624746 DFA Tacloban/28 Dec '15
13	Ballad, Morando Turingan	A/B 2	Filipino	14 Apr '70 Tuguegarao Cag	17 Jan '14 Antwerp	C0109882 Iloilo/01 Jul '18	EB3042146 DFA Manila/13 Jul '16
14	Cotiangco, Loufred Tayong	A/B 3	Filipino	25 Oct '88 Calubian Leyte	04 Feb '14 Safi	B1230093 Manila/ 28 Aug '17	EB6182115 DFA POEA/22 Aug '17
15	Naredo, Ralph Darenz Forro	O/S	Filipino	31 Mar '90 Cabatuan Iloilo	25 Sep '13 Castellon, Spain	B0868213 Iloilo/30 Jun '15	EB0349067 DFA Iloilo/06 Jun '15
16	Sancho, Jones Rondaris	MTM 1	Filipino	05 Dec '65 Manila	30 Oct '13 Safi, Morocco	C0114253 Manila/ 01 Aug '18	EB0219474 DFA Manila/14 May '15
17	Callos, Julius Abistado	MTM 2	Filipino	01 Jul '74 Sablayan MDO OC	04 Feb '14 Safi	B1070390 Batangas/ 02 Oct '16	EB3820445 DFA Batangas/ 07 Oct '16
18	Japson, Jenefer Suase	MTM 3	Filipino	01 Jan '84 Iloilo City	25 Sep '13 Castellon, Spain	B0894058 Manila/05 Jul '15	XX1830563 POEA Manila/18 Jun '15
19	Bognot, Jerry Herrera	C'cook	Filipino	03 Nov '69 Manila	25 Oct '13 Safi, Morocco	B1132923 Manila/01 Feb '17	EB4488711 DFA POEA/18 Jan '17
20	Somosot, Valther Reyes	M'man	Filipino	23 Aug '87 Cebu City	04 Feb '14 Safi	B1060147 Cebu/ 04 Sep '16	EB3123628 DFA Cebu/ 20 Jul 16

Master: Capt. Palmes, Rey Bronzal

12.2 Master Report as presented to Court

FOLIO _____

DILIGENCIA DE MANIFESTACIÓN DEL CAPITAN DEL BARCO "SICHEM AMETHYST" D. Rey Bronzal PALMES con pasaporte (EB1750332) .-

En (Tarragona), siendo las 10:30 horas del día 29 de Marzo de 2014, en las dependencias de la Guardia Civil del Puerto de Tarragona y ante el Instructor de la presente diligencia siendo el Guardia Civil con TIP S66683M, se procede a la toma voluntaria de declaración al Capitán del Barco con bandera Panamá "**SICHEM AMETHYST**", **D. Rey Bronzal PALMES con pasaporte Filipino (EB1750332)**, nacido el 14 de Enero de 1972 en Lanao del sur (Filipinas), hijo de Domingo y Margie, con domicilio en Filipinas.-


Siendo asistido en la presente diligencia como interprete por Dña. Rosana VELASCO MASÓ siendo la misma representante de la compañía aseguradora del buque en el cual ocurrieron los hechos, siendo dicha compañía Hispania P&I CORRESPONDENTS.

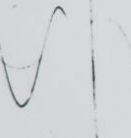
PREGUNTADO: Si desea declarar de forma voluntaria ante el instructor de la presente diligencia, Manifiesta que si.-

PREGUNTADO: Si el compareciente es el Capitán del barco con bandera de Panamá y con nombre "**SICHEM AMETHYST**", Manifiesta que si.-

PREGUNTADO: Para que relate los hechos acaecidos en el día de ayer en el barco "**SICHEM AMETHYST**", en los cuales se inició un incendio en el interior del mismo, Manifiesta que en el día de ayer 28 de marzo de 2014, se encontraban fondeados fuera del puerto de Tarragona esperando para ser repostados y acceder al puerto para realizar la carga de los tanques del buque, mientras permanecían fondeados, se acerco la barca de carga de combustible, si bien no se pudo llevar a efecto dicha maniobra debido que había mucho oleaje, por lo que decidieron llevar a cabo dicha acción una vez estuviesen dentro del puerto. Sobre las 09.45 cuando el Capitán y declarante se encontraba en su camarote dándose una ducha antes de iniciar la maniobra de levantar ancla e iniciar la marcha de los motores para acceder al puerto, salto la alarma del barco siendo concretamente la de incendio, por lo que se vistió de forma rápida accediendo al puesto de mando, desconectando la alarma al ser molesta por el ruido estridente que produce y acto seguido por megafonía interna del barco hizo saber a toda la tripulación la incidencia de que había un incendio a bordo. Unos instantes después, el Capitán pudo percatarse de que salía humo por las ventilaciones y puertas, accediendo el humo a la cabina de mando. Así mismo de la advertencia a la tripulación hizo aviso a las autoridades del puerto (Capitanía Marítima), mediante un canal UHF.

Mientras les llegaba la ayuda exterior, el Capitán ordeno a la tripulación que fuesen a la zona del incendio con los medios propios del barco para intentar extinguir el fuego, siendo combatido por la tripulación hasta la llegada de bomberos y los dos remolcadores del puerto de Tarragona. Pasados unos 20 minutos llego el barco de SASEMAR acostado al buque y unos minutos después los dos remolcadores, ayudando estos a la extinción del incendio mediante los cañones de agua. Durante toda esta maniobra, el declarante estuvo en contacto continuo con el Capitán Marítimo, siéndole informado de todo lo que iba sucediendo. Pasado ya una media hora y dado que no podían combatir el fuego el cual se encontraba localizado en la parte interior de unos de los camarotes, el Capitán marítimo le comunico que desembarcase a la tripulación al barco de SASEMAR


POLICIA JUDICIAL
DE LA GUARDIA CIVIL
EQUIPO DE SALOU


COMANDANCIA DE LA GUARDIA CIVIL
Sección Puerto
TARRAGONA



FOLIO _____



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FOLIO 2. DILIGENCIA DE MANIFESTACIÓN Del CAPITAN DEL BARCO "SICHEM AMETHYST" D. Rey Bronzal PALMES con pasaporte (EB1750332) .-

indicándole que solo permaneciese un hombre en el barco, si bien el Capitán y declarante le dijo que dejaría un total de tres personas, incluido el mismo.

Cuando la tripulación desembarcaba, llegaron los bomberos los cuales accedieron al barco para combatir el fuego, si bien fueron asistidos con indicaciones de planos y situación y localización del incendio por personal de la tripulación, así mismo colaboran facilitándoles mangueras propias del barco y en la extinción.

A las 13 horas, se dio por extinguido el fuego, accediendo el capitán a su camarote con respiración artificial para recoger la documentación de la tripulación, así como su móvil para llamar a la armadora del buque y comunicar lo sucedido.

Instantes después llega al buque, un inspector de capitania marítima para comprobar que el barco esta en perfectas funciones para iniciar la maniobra de entrada a puerto y poder ser remolcado al interior del mismo, comprobando ancla y otros servicios del barco. Una vez se encontraba el inspector a bordo del buque, el capitán le informó que toda la instalación eléctrica que correspondía a los camarotes, había sido desconectada para evitar que se produjesen más cortocircuitos e incendios. Una vez se hicieron todas las comprobaciones para realizar la maniobra de acercamiento y atraque del barco a puerto, el inspector mediante capitania marítima le comunicó que no participase la tripulación en dicha maniobra, que la misma seria realizada por bomberos, teniendo que ser el jefe de maquinas y el primer oficial los que indicasen a bomberos las maniobras a realizar. Acto seguido se iniciaron las maniobras y se levanto el ancla para entrar a puerto, siendo remolcados por un remolcador.

Como consecuencia de la extinción del incendio por parte de la tripulación, se vieron intoxicados tres personas, siendo le propio capitán, el primer oficial y el jefe de maquinas, teniendo que ser trasladados posteriormente al hospital Santa Tecla de Tarragona, donde fueron asistido por inhalación de humo, donde permanecieron desde las 18 horas del día 28 hasta las 01 del día 29, tras realizarles varias pruebas y ponerles oxigeno.

PREGUNTADO: Para que diga, si conoce la parte donde se inicio el fuego a que parte del barco pertenece y en caso positivo indique el camarote a la persona de la tripulación que pertenece, Manifiesta que donde se inicio el incendio es el camarote del Jefe de maquinas, encontrándose su ubicación en la cubierta del capitán bajo el puente de bando.

PREGUNTADO: Si sabe donde se encontraba el jefe de maquinas momentos antes o cuando se detecto el incendio, Manifiesta que supone que se encontraba en la zona de maquinas, ya que iban a realizar la maniobra para acceder a puerto.

PREGUNTADO: Si sabe como se llama dicho jefe de maquinas, y si tiene conocimiento que fume, Manifiesta que se llama **Francisco RIVERA** también de nacionalidad Filipina, y por la constancia que tiene el propio capitán dicha persona no es fumadora, habiendo coincidido con el en otros dos buques y no le ha visto nunca fumar.

PREGUNTADO: Si en los camarotes suelen llevar algún tipo de dispositivo, electrodoméstico, estufas los cuales hayan podido causar el incendio, Manifiesta que por regla general no.

PREGUNTADO: A que armador pertenece dicho barco, Manifiesta que pertenece a NEW VICTORY LINE SA con sede en la india.



12.3 Bridge Log Book

17

DECK LOG BOOK

from SICHEM AMETHYST towards 104 173

TUESDAY 25 day of MARCH 20 14

REMARKS Etc.

0600 - Took over watch from 3/6. 0601-0630 circulation
 0700 - BRMC 4514113 listed, 0710 - PANAMA-COAST GUARD 6, 0720 - TRANSMITTING FOR COLLISION, PORT
 0730 - BRMC 4514113 listed, 0740 - PANAMA-COAST GUARD 6, 0750 - TRANSMITTING FOR COLLISION, PORT
 0800 - UNIDENTIFIED AS FOR PANAMA. 0810 - PANAMA-COAST GUARD 6, 0820 - TRANSMITTING FOR COLLISION, PORT
 0830 - TOOK OVER THE WATCH FROM 3/6. CARGO DISCHARGING OPENLY CAREFULLY IN PROGRESS.
 0840 - SAFETY & SECURITY ROUTES MADE BY DECK WATCH. REPORTED ALL'S WELL. 0850 - START LOADING FRESH WATER
 0900 - COMM. EMB. BALLASTING. 0910 - CARGO DISCHARGING OPENLY CAREFULLY IN PROGRESS.
 0920 - DISCHARGING OPENLY CAREFULLY IN PROGRESS. HAND-OVER WATCH TO 3/6 BROWN. ALL'S WELL. 3/6
 0930 - Took over cargo watch from 3/6. Discharging. For 3 loading fresh water.
 Morning clerk found a soft safety round, taken ball found at 0800-0900 Harbor
 1030 - 1040 - Temp. stop of cargo discharge. Shore request for discharge close
 tanks. 1030-1040 - Loading arm drive in. 1040 - 1050 - on close request. 1040 to 2/6 Brown. 1050
 1100 - Took over port cargo watch from 3/6. VSL urgent SHARP REMOVALS TO RESUME DISCH.
 OPERATIONS. 1215 - REMOVALS END OF COMPART. 1300 - RESUME DISCH. EDC @ LOW RATE.
 1400 - DISCH RATE TO MAX. 5000. - SPARE 3 STOPS FORCED. 1500 - SSSCL RE-ARRANGED.
 1600 - TOOK OVER PORT & CARGO WATCH FROM 3/6. CARGO DISCHARGING OPENLY CAREFULLY IN PROGRESS.
 1600 - SAFETY & SECURITY ROUTES MADE PER DUTY A/B. REPORTED ALL'S WELL.
 1900 - SSSCL RE-CHECKED & REPORTED ALL'S WELL. GAUGWAY WATCH MAINTAINED.
 2000 - CARGO DISCHARGING OPENLY CAREFULLY IN PROGRESS. 4/6 WATCH TO 3/6 BROWN. CARGO TANK 3/6
 Took over cargo watch from 3/6. Balance 0800. Morning light ground, going way all ok.
 Discharging of 2/6 Swigs. EDC, Manual & gauges compared hourly state. Steer
 manual checked. 1000 temporary stopped cap on hose. Request 2300 complete & bulk disk
 started discharge. 1000 temporary watch 4/6 to 3/6 James. 2300
 0600 - 0630 AS OTTAWA 4 01 MARCH
 0630 - 0700 AS BIREMA 4 01 MARCH
 0700 - 0730 AS CANARCA 4 05 MARCH
 0730 - 0800 AS BARRIO 3 FRANCIS

COURSE	Log	Time	COURSES		ERROR	WINDS		Waves dir height	Baro- meter	Therm- ometer	Remarks Etc.
			Gyro	Star		Dir	Force				
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											

Time Course
 Made To Noon
 20 - 1

Distance (Stat. Miles)
 Days Run 8.8
 Total 236.2
 To Go 0

Latitude
 04 43 N
 74.0 W

Longitude
 004
 57.8 W

Speed (Knots)
 This Day 25.7
 Average 11.73
 Total 200
 Mean Average 11.61

Distance Per Log
 Set
 Drift

WATER IN HOLDS
 (Port) (Stbd)
 a.m. p.m. a.m. p.m.

No. 1 0600 - 0630 AS OTTAWA 4 01 MARCH
 No. 2 0630 - 0700 AS BIREMA 4 01 MARCH
 No. 3 0700 - 0730 AS CANARCA 4 05 MARCH
 No. 4 0730 - 0800 AS BARRIO 3 FRANCIS
 No. 5
 No. 6
 No. 7
 Eng. Room

Master

Chief Officer

Merchant Marine General Directorate

Department of Maritime Casualty Investigations

Report: M/V "SICHEM AMETHYST" R-038-14-DIAM



DECK LOG BOOK

M.V./M.

from *San Pedro de Macoris* towards *San Pedro de Macoris*

HOURS	Log	Time	COURSES		ERROR	WINDS		Waves	Haze	Ther	Bar	Remarks, etc.
			Govt	Steer		Dir	Force					
01												0000 - 0100 - 0200 - 0300 - 0400 - 0500 - 0600 - 0700 - 0800 - 0900 - 1000 - 1100 - 1200 - 1300 - 1400 - 1500 - 1600 - 1700 - 1800 - 1900 - 2000 - 2100 - 2200 - 2300 - 2400
02												0100 - 0200 - 0300 - 0400 - 0500 - 0600 - 0700 - 0800 - 0900 - 1000 - 1100 - 1200 - 1300 - 1400 - 1500 - 1600 - 1700 - 1800 - 1900 - 2000 - 2100 - 2200 - 2300 - 2400
03												0200 - 0300 - 0400 - 0500 - 0600 - 0700 - 0800 - 0900 - 1000 - 1100 - 1200 - 1300 - 1400 - 1500 - 1600 - 1700 - 1800 - 1900 - 2000 - 2100 - 2200 - 2300 - 2400
04												0300 - 0400 - 0500 - 0600 - 0700 - 0800 - 0900 - 1000 - 1100 - 1200 - 1300 - 1400 - 1500 - 1600 - 1700 - 1800 - 1900 - 2000 - 2100 - 2200 - 2300 - 2400
05												0400 - 0500 - 0600 - 0700 - 0800 - 0900 - 1000 - 1100 - 1200 - 1300 - 1400 - 1500 - 1600 - 1700 - 1800 - 1900 - 2000 - 2100 - 2200 - 2300 - 2400
06												0500 - 0600 - 0700 - 0800 - 0900 - 1000 - 1100 - 1200 - 1300 - 1400 - 1500 - 1600 - 1700 - 1800 - 1900 - 2000 - 2100 - 2200 - 2300 - 2400
07												0600 - 0700 - 0800 - 0900 - 1000 - 1100 - 1200 - 1300 - 1400 - 1500 - 1600 - 1700 - 1800 - 1900 - 2000 - 2100 - 2200 - 2300 - 2400
08												0700 - 0800 - 0900 - 1000 - 1100 - 1200 - 1300 - 1400 - 1500 - 1600 - 1700 - 1800 - 1900 - 2000 - 2100 - 2200 - 2300 - 2400
09												0800 - 0900 - 1000 - 1100 - 1200 - 1300 - 1400 - 1500 - 1600 - 1700 - 1800 - 1900 - 2000 - 2100 - 2200 - 2300 - 2400
10												0900 - 1000 - 1100 - 1200 - 1300 - 1400 - 1500 - 1600 - 1700 - 1800 - 1900 - 2000 - 2100 - 2200 - 2300 - 2400
11												1000 - 1100 - 1200 - 1300 - 1400 - 1500 - 1600 - 1700 - 1800 - 1900 - 2000 - 2100 - 2200 - 2300 - 2400
12												1100 - 1200 - 1300 - 1400 - 1500 - 1600 - 1700 - 1800 - 1900 - 2000 - 2100 - 2200 - 2300 - 2400
13												1200 - 1300 - 1400 - 1500 - 1600 - 1700 - 1800 - 1900 - 2000 - 2100 - 2200 - 2300 - 2400
14												1300 - 1400 - 1500 - 1600 - 1700 - 1800 - 1900 - 2000 - 2100 - 2200 - 2300 - 2400
15												1400 - 1500 - 1600 - 1700 - 1800 - 1900 - 2000 - 2100 - 2200 - 2300 - 2400
16												1500 - 1600 - 1700 - 1800 - 1900 - 2000 - 2100 - 2200 - 2300 - 2400
17												1600 - 1700 - 1800 - 1900 - 2000 - 2100 - 2200 - 2300 - 2400
18												1700 - 1800 - 1900 - 2000 - 2100 - 2200 - 2300 - 2400
19												1800 - 1900 - 2000 - 2100 - 2200 - 2300 - 2400
20												1900 - 2000 - 2100 - 2200 - 2300 - 2400
21												2000 - 2100 - 2200 - 2300 - 2400
22												2100 - 2200 - 2300 - 2400
23												2200 - 2300 - 2400
24												2300 - 2400

Chief Officer

Master

Merchant Marine General Directorate

Department of Maritime Casualty Investigations

Report: M/V "SICHEM AMETHYST" R-038-14-DIAM



DECK LOG BOOK

M/V "SICHEM AMETHYST" from TARACAGONA towards TARACAGONA SPAIN

THURSDAY 27 day of MARCH 20 14

Hour	Log	Time	Course	Wind	Winds	Barometer	Thermometer	Remarks
00								0000 - TOOK OVER NW. WATER FROM 3/0. MAR. OPS. 0015. CAPTAIN'S ROOM - FIRE EXTINGUISHERS BY 3/0 MAR. OPS.
01								0030 - HAD SIB. TESTED. OFF COURSE AGAIN. TRIM OUT SATISFACTORY. VSL FROM FLOOR & CHARTER AS PER PASSAGE PLAN.
02								0045 - COMPASS COMPARED. ERROR OBSERVED. VSL FOLLOWING THROUGH GENTLY TO MOD SW. LIGHT SWELL. GOOD VISIBILITY.
03								0100 - GPS FROM 3/0-26.6'N, 74-08.83'E. MAR. WATER TO 3/0 BOLIVAR. ALL IS WELL. 2/0
04	53	1231						0100 - GPS FROM 3/0-26.6'N, 74-08.83'E. MAR. WATER TO 3/0 BOLIVAR. ALL IS WELL. 2/0
05								0130 - TOOK OVER THE WATCH FROM 3/0 AS PER MAROP. 0015. THIS IS DEPT. HAVING MADE BY 3/0 & AD. REPORTING ALL IS WELL.
06								0130 - RETING RIGID STEERING. MPU OFF COURSE AGAIN. COURSE CHECKED. ERROR UNPREDICTABLE DUE TO VESSEL HEAVING TO WINDLINE.
07								0140 - COMPASS COMPARED. COURSE CHECKED. ERROR UNPREDICTABLE DUE TO VESSEL HEAVING TO WINDLINE.
08	54	206	207	209				0200 - GPS FROM 01-41-49.1N LONG. 03-26.6E. HAD OVER WATCH TO 3/0 MAR. AT PER MAROP. 0015. ALL IS WELL. 3/0
09	55	231	230	231				0210 - TOOK OVER NEW WATCH FROM 3/0 BOLIVAR. ALL IS WELL. HAD OVER WATCH TO 3/0 MAR. AT PER MAROP. 0015. COMPASS COMPARED. ERROR OBSERVED. VSL FOLLOWING THROUGH GENTLY TO MOD SW. LIGHT SWELL. GOOD VISIBILITY.
10	56	235	234	231	057.0	04		0230 - COMPASS COMPARED. HANDSHY TRIED TO LOC. MASTER COMPANY OFFICER FOLLOWED.
11	57	231	231	232				0240 - GPS FROM 01-41-49.1N LONG. 03-26.6E. HAD OVER WATCH TO 3/0 MAR. AT PER MAROP. 0015. ALL IS WELL. 3/0
12	53	231	231	232				0240 - GPS FROM 01-41-49.1N LONG. 03-26.6E. HAD OVER WATCH TO 3/0 MAR. AT PER MAROP. 0015. ALL IS WELL. 3/0
13								0240 - GPS FROM 01-41-49.1N LONG. 03-26.6E. HAD OVER WATCH TO 3/0 MAR. AT PER MAROP. 0015. ALL IS WELL. 3/0
14	23'							0240 - GPS FROM 01-41-49.1N LONG. 03-26.6E. HAD OVER WATCH TO 3/0 MAR. AT PER MAROP. 0015. ALL IS WELL. 3/0
15								0240 - GPS FROM 01-41-49.1N LONG. 03-26.6E. HAD OVER WATCH TO 3/0 MAR. AT PER MAROP. 0015. ALL IS WELL. 3/0
16								0240 - GPS FROM 01-41-49.1N LONG. 03-26.6E. HAD OVER WATCH TO 3/0 MAR. AT PER MAROP. 0015. ALL IS WELL. 3/0
17								0240 - GPS FROM 01-41-49.1N LONG. 03-26.6E. HAD OVER WATCH TO 3/0 MAR. AT PER MAROP. 0015. ALL IS WELL. 3/0
18	45'							0240 - GPS FROM 01-41-49.1N LONG. 03-26.6E. HAD OVER WATCH TO 3/0 MAR. AT PER MAROP. 0015. ALL IS WELL. 3/0
19								0240 - GPS FROM 01-41-49.1N LONG. 03-26.6E. HAD OVER WATCH TO 3/0 MAR. AT PER MAROP. 0015. ALL IS WELL. 3/0
20								0240 - GPS FROM 01-41-49.1N LONG. 03-26.6E. HAD OVER WATCH TO 3/0 MAR. AT PER MAROP. 0015. ALL IS WELL. 3/0
21								0240 - GPS FROM 01-41-49.1N LONG. 03-26.6E. HAD OVER WATCH TO 3/0 MAR. AT PER MAROP. 0015. ALL IS WELL. 3/0
22								0240 - GPS FROM 01-41-49.1N LONG. 03-26.6E. HAD OVER WATCH TO 3/0 MAR. AT PER MAROP. 0015. ALL IS WELL. 3/0
23								0240 - GPS FROM 01-41-49.1N LONG. 03-26.6E. HAD OVER WATCH TO 3/0 MAR. AT PER MAROP. 0015. ALL IS WELL. 3/0
24	35'							0240 - GPS FROM 01-41-49.1N LONG. 03-26.6E. HAD OVER WATCH TO 3/0 MAR. AT PER MAROP. 0015. ALL IS WELL. 3/0

Distance (Nautical Miles): Days Run 73.6, Total 73.6, To Go 6.3

Latitude: 01-41-49.1 N, Longitude: 03-26.6 E

Speed (Knots): Average 13.2, Mean Average 13.2

Distance Per Log: Set 5.4, Drift 1.40 RFS

Water in Holds: (Port) p.m., (Starboard) p.m.

Water in Tanks: (Port) p.m., (Starboard) p.m.

No. 1 0000 - 0600 AIS CORNING + 95 MANGO
 No. 2 0800 - 1200 AIS BILKAD + AIS LUCRANZ
 No. 3 1200 - 1800 AIS CORNING + 83 MAREO
 No. 4 1800 - 2400 AIS BILKAD + 83 MAREO

Log Room: No. 1, No. 2, No. 3, No. 4, No. 5, No. 6, No. 7

Chief Officer: Master.



12.4 Bridge Bell Log

D F 3-15
A 5-00

.000069

BERNHARD SCHULTE SHIPMANAGEMENT **S**

ARRIVAL Port FOS Date 26/03/14 Voy No. 194

DEPARTURE Port PARACANA Date 29 MAR 14 Voy No. 194

Tested telegraph at 2040 Steering engines at 2035 Clocks at 2035 hrs.

STAND BY at 2130 hrs. C.O.P. at 2242 hrs. F.W.E.

MOVEMENT	TIME
1HR NOTICE TO E/R	2030
STR TESTED	2035
TELEGRAPH TEST	2040
M/E TEST	2044
Body Nav equip Test	2035-2110
Master on bridge	2110
P.O.B	2130
MPIE	2138
COMMENCE UNMOORING	2135
ALL LINES ONBOARD	2150
Passing buoy B	2207
45° 23' 43" N LAT 45° 21' 50" W LONG 079° 57' 71" W PILOT AWAY	2230
C.O.S.P LONG 079° 57' 71" W	2242
MASTER LEFT BRIDGE CONNS TO RUN	2255
BANKERS ON	

Master / Chief Engineer *[Signature]*

Officer on Watch *[Signature]*

.000070

BERNHARD SCHULTE SHIPMANAGEMENT **S**

ARRIVAL Port PARACANA Date 29 MAR 14 Voy No. 194

DEPARTURE Port PARACANA Date 29 MAR 14 Voy No. 194

Tested telegraph at 1330 Steering engines at 1240 Clocks at 1240 hrs.

STAND BY at 1345 hrs. C.O.P. at 1348 hrs. F.W.E.

MOVEMENT	TIME
1 HR NOTICE TO E/R	1230
BANKERS UNMOORING TESTED	1230-1300
STR & COOR TESTED	1240
RPM REDUCED TO 130	1325
F.W.E COMMENCED DRAFTING	1348
VSL DRAFTING COY	
Y 40-54.6' N, λ 002-06.3' E	
ENGINE UNDER SHORT NOTICE	1400
FOR 1 MIN. MANUEVRINK.	<i>[Signature]</i>
REV. @ DRAFTING AREA	28 MAR 14
SHORT NOTICE TO E/R	0130
BRIDGE NAV. EQUIP. TESTED	0130-0200
STR & COOR TESTED. OK	0140-0145
STR & TELEGRAPH TESTED	0154
RESUME VOYAGE TO TAMPA	0212
CONA. GPS POSN Y 41-03.1' N λ 001-57.2' W	0228
λ 001-57.2' W	
RUN UP ENGINE.	0230

Master / Chief Engineer *[Signature]*

Officer on Watch *[Signature]*



12.5 Engine Log Book

Engineer's Log M. T. FOS, F. RAPOCE
 on Voyage from

DATE	WATCH	HOURS	MINUTES	REVOLUTIONS		SEA TEMP.	REGULATION GEAR SETTINGS			FUEL CONSUMPTION			LUBRICATING OIL CONSUMPTION			PRESSURES				
				Counter	Per Min.		Fuel Lever	Governor Setting	Load Indicator	Ignition Setting	Main Engine	Boiler	Crank Case	Cylinder	Auxiliaries	Main Engine Lub. Oil Sump	Jacket Water	Piston Cooling	Beating Oil	Fuel Inlet Cooling
27/12/8	12 to 4				30	16														
	4 to 8				30	16														
	8 to 12				30	16														
	12 to 4	2	11029	16	129.9	31	16	4.5												
	4 to 8				31	16														
	8 to 12				31	16														
TOTALS																				
AVERAGES																				

DATE	WATCH	AIR PRESS. EXH. PRESS. TURBINES			EXH. TEMP. TURBINES			TURBO-BLOWERS						TEMP. AIR COOLERS °C			COOLING WATER OUTLETS °C			TURBO OIL PRESSURE	BOILERS WORKING		PURIFIERS WORKING		HOURS RUNNING		DIESEL											
		No. 1	No. 2	No. 3	No. 1	No. 2	No. 3	No. 1	No. 2	No. 3	No. 1	No. 2	No. 3	No. 1	No. 2	No. 3	No. 1	No. 2	No. 1		No. 2	No. 1	No. 2	No. 1	No. 2	No. 1	No. 2	No. 1	No. 2									
12 to 4		2808	2051	7458	7068	8765	1638	8771	845	5242	3142	9026	1350	1208	80	10																						
4 to 8		2068	2261	7458	7068	8771	845	8771	845	5242	3142	9026	1350	1208	80	10																						
8 to 12		2068	2261	7458	7068	8771	845	8771	845	5242	3142	9026	1350	1208	80	10																						
12 to 4	8 to 12																																					
4 to 8																																						
8 to 12																																						
TOTALS																																						
Average																																						

REMARKS 0318 hrs. STOPPED A/E # 1.
 27 MAR. 2014 500 LBS. VENTOS 800 MARCHE 30 OIL REVENISHED TO M/S SUMP TANK.
 28 MAR. 2014 200 LBS. M/D. OIL FROM STORAGE TX. TO POWER PACK. HYP. OIL TR.
 0630 HRS. A/E #1 STOPPED

Accommodation. fire AH-M/E-32000 fire
 0900 Hrs. E/R Mustard.
 0930 HRS. E/R Mustard.

756

Merchant Marine General Directorate
 Department of Maritime Casualty Investigations
 Report: M/V "SICHEM AMETHYST" R-038-14-DIAM



10 TARRAGONA, SPAIN

Voyage No. 105

TEMPERATURES IN DEGREES CENTIGRADE																			
PISTON COOLING					EXHAUST TEMPERATURES														
OUTLETS					CYLINDER OUTLETS														
JACKET WATER					FUEL VALVE COOLING														
OUTLETS					FUEL VALVE COOLING														
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
180	185	190	195	200	180	185	190	195	200	180	185	190	195	200	180	185	190	195	200

GENERATORS																				
LUBRICATING OIL					COOLER WATER °C															
PRESSURE KG/CM²					MAX. JACKET OUTLET															
INLET & OUTLET °C					DIESEL OIL CONSUMPTION															
1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
2.5	2.40	2.20	4.7	3.5	38.2	6.0	6.0	6.0	4.7	3.5	5.2	6.0	6.0	6.0	4.7	3.5	5.2	4.7	3.5	5.2
2.5	2.40	2.20	4.7	3.5	38.2	6.0	6.0	6.0	4.7	3.5	5.2	6.0	6.0	6.0	4.7	3.5	5.2	4.7	3.5	5.2

FRESH WATER ACCOUNT		DAILY OIL CONSUMPTION STATEMENT	
REMAINING NOON TODAY	CONSUMED SINCE NOON YESTERDAY	Boiler	Other
1000	1000	1000	1000

FUEL CONSUMPTION		CARGO PURPOSES	
No. 1 Boiler	No. 2 Boiler	No. 1 Boiler	No. 2 Boiler
1000	1000	DISCHARGING CARGO	DISCHARGING CARGO
1000	1000	LOADING CARGO	LOADING CARGO
1000	1000	BALASTING / DE-BALASTING	BALASTING / DE-BALASTING



12.6 Certificate of Inspection of Crew Accommodation

Full Term Certificate No. ICS-11-006
 Interim Certificate No. ICS-10-05-214

República de Panamá
 REPUBLIC OF PANAMA
 AUTORIDAD MARITIMA DE PANAMA
 PANAMA MARITIME AUTHORITY
 DIRECCION GENERAL DE LA GENTE DE MAR
 DIRECTORATE GENERAL OF SEAFARERS

CERTIFICADO DE INSPECCION DE LOS ALOJAMIENTOS DE LA TRIPULACION
CERTIFICATE OF INSPECTION OF CREW ACCOMMODATIONS

Expedido de acuerdo a la Resolución J. D No. 011-2005 de fecha julio 26 de 2005 y Resolución No. 106-OR-DGMM de fecha noviembre 25 de 2005, incluyendo las disposiciones del Convenio 68 y 92 de la OIT (o del Convenio 126 en el caso de los Buques Pesqueros)

Issued in accordance to Resolution J. D. No. 011-2005 of July 26, 2005 and Resolution No. 106-OR-11-DGMM of November 25, 2005 including the relevant provisions of ILO Convention 68 and 92 (or Convention 126 in the case of Fishing Vessels)

Nombre del Buque Name of Ship	Tipo Type	Número o letras distintivos Distinctive Number or letters	Puerto de Matriculación Port of Registry	Arqueo Bruto Gross Tonnage	Fecha de Construcción Date of Build
SICHEM AMETHYST	OIL/CHEMICAL TANKER	3EGQ6	PANAMA	5303	2006 (Keel Laid)

Se certifica que los alojamientos de la tripulación y otros espacios asociados del buque arriba citado han sido inspeccionados y encontrados satisfactorios, de acuerdo a los reglamentos en vigor en la República de Panamá, incluyendo las partes aplicables de los Convenios de la O.I.T. números 68 y 92 (ó 126, en el caso de buques de pesca).

This is to certify that the crew accommodations and other associated spaces of the above vessel have been inspected and found satisfactory according to the regulations in force in the Republic of Panama, including the relevant provisions of ILO Conventions 68 and 92 (or 126 in the case of Fishing Vessels).

Las disposiciones están aprobadas para un máximo de -22- tripulantes
 The arrangements are approved for a maximum of (TWENTY-TWO) crew members.

OBSERVACIONES – REMARKS: -NONE-

El presente Certificado es válido hasta el
 This Certificate is valid until NOVEMBER 22, 2014

Expedido en: PANAMA, REP. DE PANAMA en fecha JANUARY 06, 2011
 Issued at on the

El abajo firmante declara que está autorizado por la D.G.G.M. para expedir este certificado.
 The undersigned declares that he is authorized by the D.G.G.M. to issue this certificate.

En nombre de la Dirección General de la Gente de Mar
 On behalf of the DIRECTORATE GENERAL OF SEAFARERS:

Nombre: LIC. ROBERTO C. VALLARINO M.
 Name General Director of Seafarers

Firma: [Signature]
 Signature

INTERMARITIME
 Certification Services, S.A.

CICA/FT (2006/01)



12.7 Last Alcohol Test carried out onboard

Form No: SHE - 22

Alcohol Breath Test Record

Vessel: M.T. SICHEM AMETHYSTI Vessel Location: Lavera, France
 Reason for test: Unannounced Alcohol Test Date: 25 March 2014 Time: 1000H LT.
 Breath analyzer: Last calibrated: 15 JAN.2014 Next Due: 15 JAN.2015

Rank	Name of crew member	%BAC*	Crew member's signature	Name of Witness	Rank of Witness	Signature of Witness
Master	Rey B. Palmes	0.00	<i>[Signature]</i>	Francisco V. Rivera Jr.	Ch/eng	<i>[Signature]</i>
2/O	James Ceasard F. Dumbrique	0.00	<i>[Signature]</i>	Rey B. Palmes	Master	<i>[Signature]</i>
1/E	Eliseo A. Paldas	0.00	<i>[Signature]</i>	Dumbrique, James Ceasard F.	2/O	<i>[Signature]</i>
A/B1	Francisco L. Luchavez	0.00	<i>[Signature]</i>	Dumbrique, James Ceasard F.	2/O	<i>[Signature]</i>
A/B3	Loufred T. Cotiangco	0.00	<i>[Signature]</i>	Dumbrique, James Ceasard F.	2/O	<i>[Signature]</i>
MTM1	Jones R. Sancho	0.00	<i>[Signature]</i>	Dumbrique, James Ceasard F.	2/O	<i>[Signature]</i>
Msmn	Valther R. Somosot	0.00	<i>[Signature]</i>	Dumbrique, James Ceasard F.	2/O	<i>[Signature]</i>
C/Cook	Jerry H. Bognot	0.00	<i>[Signature]</i>	Dumbrique, James Ceasard F.	2/O	<i>[Signature]</i>
2/Engr	Restie F. Cañon	0.00	<i>[Signature]</i>	Dumbrique, James Ceasard F.	2/O	<i>[Signature]</i>
C/O	Andrew A. Ladaga	0.00	<i>[Signature]</i>	Dumbrique, James Ceasard F.	2/O	<i>[Signature]</i>

*(Blood Alcohol Concentration)

Master's Review & Recommendations:

Capt. Rey B. Palmes / 25 March 2014
 Master Sign/Name/Date

Merchant Marine General Directorate

Department of Maritime Casualty Investigations

Report: **M/V "SICHEM AMETHYST"R-038-14-DIAM**



Form No: SHE - 22

BERNHARD SCHULTE
SHIPMANAGEMENT

Alcohol Breath Test Record

Vessel: M.T. SICHEM AMETHYST Vessel Location: LAVERA, FRANCE

Reason for test: Unannounced Alcohol Test Date: 25 Mar. 2014 Time: 1000H Lt.

Breath analyzer: Last calibrated: 15 JAN. 2014 Next Due: 15 JAN. 2015

Sr. No.	Rank	Name of crew member	%BAC*	Crew member's signature	Name of Witness	Rank of Witness	Signature of Witness
11	C/Engr	Francisco V. Rivera	0.00	<i>[Signature]</i>	Dumbrique, James Ceasard F.	2/O	<i>[Signature]</i>
12	3 rd Engr	Arthur B. Aguinaldo	0.00	<i>[Signature]</i>	Dumbrique, James Ceasard F.	2/O	<i>[Signature]</i>
13	Bosun	Jovinal N. Arevalo Jr.	0.00	<i>[Signature]</i>	Dumbrique, James Ceasard F.	2/O	<i>[Signature]</i>
14	AB 2	Morando T. Ballad	0.00	<i>[Signature]</i>	Dumbrique, James Ceasard F.	2/O	<i>[Signature]</i>
15	O/S	Ralph Darenz F. Naredo	0.00	<i>[Signature]</i>	Dumbrique, James Ceasard F.	2/O	<i>[Signature]</i>
16	MTM 2	Julius A. Callos	0.00	<i>[Signature]</i>	Dumbrique, James Ceasard F.	2/O	<i>[Signature]</i>
17	MTM 3	Jenefer S. Japson	0.00	<i>[Signature]</i>	Dumbrique, James Ceasard F.	2/O	<i>[Signature]</i>
18	4 th Engr	Siva Ganesh Chinnakaliapan	0.00	<i>[Signature]</i>	Dumbrique, James Ceasard F.	2/O	<i>[Signature]</i>
19	3/Off	Rahul Sharma	0.00	<i>[Signature]</i>	Dumbrique, James Ceasard F.	2/O	<i>[Signature]</i>
20	3/Off	Charito G. Bolano	0.00	<i>[Signature]</i>	Dumbrique, James Ceasard F.	2/O	<i>[Signature]</i>

* BAC (Blood Alcohol Concentration)

Master's Review & Recommendations:

[Signature]
Capt. Rev. B. Palmes / 25 March 2014
Master Sign/Name/Date



12.8 Fire Equipment Inventory

M.T. Sichem Amethyst
 PANAMA

Inventory List Of Breathing Apparatus

No	Location	Serial Number	Last Pressure Tested	Remarks
01	Fire Station Stbd. Side Poop Deck (Inside Accommodation)	2D-76977	September-2011	Spare Bottle
02	Fire Station Stbd. Side Poop Deck (Inside Accommodation)	2D-76976	September-2011	Spare Bottle
03	Fire Station Stbd. Side Poop Deck (Inside Accommodation)	2D-76862	September-2011	B.A. Use
04	Fire Station Stbd. Side Poop Deck (Inside Accommodation)	2D-77016	September-2011	B.A. Use
05	Fire Mans Outfit Locker < Inside Accmd > (Port Side – Boat Deck)	2D-77000	September-2011	B.A. Use
06	Fire Mans Outfit Locker < Inside Accmd > (Port Side – Boat Deck)	2D-77082	September-2011	B.A. Use
07	Fire Mans Outfit Locker < Inside Accmd > (Port Side – Boat Deck)	2D-76883	September-2011	Spare Bottle
08	Fire Mans Outfit Locker < Inside-Accmd > (Port Side – Boat Deck)	2D-76882	September-2011	Spare Bottle
09	SMPEP Locker < Outside Accommodation > (Near Port Manifold)	2D-76896	September-2011	B.A. Use
10	SMPEP Locker < Outside Accommodation > (Near Port Manifold)	2D-76897	September-2011	B.A. Use
11	Safety Equipment Locker < Outside Accmd > (Boat Deck – Stbd. Side)	2D-77001	September-2011	Spare Bottle
12	Safety Equipment Locker < Outside Accmd > (Boat Deck – Stbd. Side)	2D-76866	September-2011	Spare Bottle
13	Safety Equipment Locker < Outside Accmd > (Boat Deck – Stbd. Side)	ZRN-024	September-2011	Spare Bottle*
14	Safety Equipment Locker < Outside Accmd > (Boat Deck – Stbd. Side)	2D-77017	September-2011	Spare Bottle
15	SMPEP Locker < Outside Accommodation > (Near Port Manifold)	ZRN-021	September-2011	B.A. Use*

Remarks:

KAWASAKI Lifegem 6 SET SCBA.= 14.7 Mpa
 SABRE SCOTT 1 SET SCBA. = 30.0 Mpa
 Total Breathing Apparatus = 7 Sets
 Total Spare B.A. Bottle = 8 Pcs.
 Total Fireman's Out Fit = 4 Sets

Note: Annual Service Done by: *PREVINAVE @ Setubal Portugal 26Dec13*



M.T. Sichem Amethyst
P A N A M A

**LIST OF SAFETY EQUIPMENT INSIDE THE
FIREMANS OUTFIT LOCKER**

(Location: Port Side Boat Deck Inside the Accommodation)

No.	Items / Description	Quantity
01	Air Breathing Apparatus (Self-Contained Type)	2 Sets
02	Spare Air Cylinder	2 Btls.
03	Helmets With Visor	2 Sets
04	Safety Lamp (Small Type)	2 Pcs.
05	Life Lines	2 Pcs.
06	Safety Belts	2 Pcs.
07	Fire Mans Axe	2 Pcs
08	Fire Mans Outfit	2 Sets
09	Fire Mans Gloves	2 Pair
10	Fire Mans Boots	2 Pair

7
8
9
10
1
2
3
4
5




M.T. Sichem Amethyst
P A N A M A

**LIST OF SAFETY EQUIPMENT INSIDE THE
FIREMANS OUTFIT LOCKER**
(Location: Starboard Side Poop Deck Inside the Accommodation)

No.	Items / Description	Quantity
01	Air Breathing Apparatus (Self-Contained Type)	2 Sets
02	Spare Air Cylinder	2 Btls.
03	Helmets With Visor	2 Sets
04	Safety Lamp (Small Type)	2 Pcs.
05	Life Lines	2 Pcs.
06	Safety Belts	2 Pcs.
07	Fire Mans Axe	2 Pcs
08	Fire Mans Outfit	2 Sets
09	Fire Mans Gloves	2 Pair
10	Fire Mans Boots	2 Pair
11	E.E.B.D. (Em'cy Escape Breathing Devised)	1 Pc.
12	International Shore Connection	1 Pc.

12.9 Compressor Air Quality Test


PREVINAVE
marine safety services

Parque Vialonga, Armazém 51 - Granja
2625-607 Vialonga - PORTUGAL
Fax: 00351 21 947 05 76 Tel: 00351 21 947 05 90
E-mail: previnave@previnave.com

AIR QUALITY TEST

Vessel: **SICHEM AMETHYST**
Engineers Initials: **JC**

Date: **26/12/13**
Certificate N° **116/13**

Compressor: **AIR COMPRESSOR**
Serial Number: **4402036**
Type: **AVC 140**

Performed Activities:


- Air sampled on oil particles (DIN 12021 standard < 0,5 mg/m³)
Result: Measured: < **0,5** mg/m³
- Air sampled on water vapour (DIN 12021 standard < 25 mg/m³)
Result: Measured: < **25** mg/m³
- Air sampled on carbon monoxide (DIN 12021 standard < 15 ppm)
Result: Measured: < **5** ppm
- Air sampled on carbon dioxide (DIN 12021 standard < 500 ppm)
Result: Measured: < **300** ppm
- Is the air in conformity with the DIN 12021 standard?
Result: **OK**

THIS CERTIFICATE IS ISSUED BY PREVINAVE,LDA, PORTUGAL

Ref: AQT-38 (03/07/08)



12.10 Fire Man Outfit Shore service Certificate

124  **PREVINAVE**
marine safety services

REPORT OF WORK DONE

Parque Vialonga, Armazém 51 - Granja
2625-607 Vialonga PORTUGAL
Fax: 0035 21 947 05 76 Tel: 0035 21 947 05 90
E-mail : previnave@previnave.com

VESSEL NAME : SICHEM AMETHYST
INSPECTION DATE : 26/12/2013
CERTIFICATE Nº 116/13

We, PREVINAVE - Segurança e Prevenção no Trabalho, Ldª., hereby certify that we have examined and tested the **FIRE APPLIANCES AND EQUIPMENT**, in accordance with the Report below.

FIRE MAN OUTFIT


4 – Inspection Fire Man Outfit, serial number nº183;184;185;186 complete with:

- Trousers
- Coat
- Gloves
- Axe
- Flashlight
- Belts
- Helmets
- Boots
- Rope
- Lifeline

The Equipment is in good conditions of work


THIS CERTIFICATE IS ISSUED BY PREVINAVE, LDA, PORTUGAL

Ref. RWD-02 (22/04/02)

 **PREVINAVE**
Parque Vialonga, Armazém 51 - GRANJA
2625-607 VIALONGA - PORTUGAL



12.11 Fire Equipment Shore service Certificate



MARINE CERTIFICATE OF INSPECTION


DAY	MONTH	YEAR	CERTIFICATE Nº
26	12	13	116/13
NAME OF THE VESSEL			PLACE OF SERVICE
SICHEM AMETHYST			SETUBAL
IMO NUMBER			FLAG
9354571			PANAMA
			CLASSIFICATION SOCIETY
			NKK

We have examined and tested the equipment specified

<input type="checkbox"/> CO2 Installation	<input checked="" type="checkbox"/> EEBD's (Emergency equipment breathing device)
<input type="checkbox"/> Water Mist Instalation	<input checked="" type="checkbox"/> Air Analysis
<input type="checkbox"/> Powder Installation	<input type="checkbox"/> Portable Gas Detectors
<input type="checkbox"/> Foam Installation	<input type="checkbox"/> Fire Detection
<input checked="" type="checkbox"/> Fire Extinguishers	<input checked="" type="checkbox"/> FireMan Outfit
<input checked="" type="checkbox"/> Breathing Apparatus	<input checked="" type="checkbox"/> Foam Applicator
<input checked="" type="checkbox"/> Compressed Air Cylinders	<input type="checkbox"/> Nº. of. Enclosures
	7

This Certificate is valid when service sheets are attached and been signed and stamped by PREVINAVE






Previnave Stamp and Supervisor Signature



Technician Name

Supervisor Name

Approvals :

ABS

Approved Service Supplier
Approval Programme 405


PREVINAVE-Prevenção e Segurança, Ldª.- Parque Vialonga, Armazém 51 - Granja 2625-607 Vialonga - Portugal
 Telef. : + 351 21 947 05 90 Fax : + 351 21 947 05 76 E-mail : previnave@previnave.com

Ref.CMI - 01 (19/01/11)



12.12 Ship Safety Cargo Equipment & Form E

Page 1 of 4
Panama


CARGO SHIP SAFETY EQUIPMENT CERTIFICATE
 This Certificate shall be supplemented by a Record of Equipment (Form E)
 (Form E No. 14HO01004-SER) Rewritten
Certificate No. 14HO01004-SEC
(Ex.Cert.No. ST-14AW0010-SEC)

Issued under the provisions of the
INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974,
 as modified by the Protocol of 1988 relating thereto
 under the authority of the Government of
the Republic of Panama
 by NIPPON KAIJI KYOKAI

Particulars of ship

Name of ship	: SICHEM AMETHYST
Distinctive number or letters	: 3EGQ6
Port of registry	: Panama
Gross tonnage	: 5,303
Deadweight of ship (metric tons) ¹⁾	: 8,817
Length of ship (regulation III/3.12)	: 108.53 m
IMO Number	: IMO 9354571

Type of ship ²⁾

Bulk carrier
Oil tanker
Chemical tanker
Gas carrier
Cargo ship other than any of the above

Date on which keel was laid or ship was at a similar stage of construction
 or, where applicable, date on which work for a conversion or an alteration
 or modification of a major character was commenced. : **24 April 2006**

THIS IS TO CERTIFY:

- 1 That the ship has been surveyed in accordance with the requirements of I/8 of the Convention.
- 2 That the survey showed that:
 - 2.1 the ship complied with the requirements of the Convention as regards fire safety systems and appliances and fire control plans;
 - 2.2 the life-saving appliances and the equipment of lifeboats, liferafts and rescue boats were provided in accordance with the requirements of the Convention;
 - 2.3 the ship was provided with a line-throwing appliance and radio installations used in life-saving appliances in accordance with the requirements of the Convention;
 - 2.4 the ship complied with the requirements of the Convention as regards shipborne navigational equipment, means of embarkation for pilots and nautical publications;

1) For oil tankers, chemical tankers and gas carriers only
 2) Delete as appropriate

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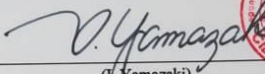



- 2.5 the ship was provided with lights, shapes, and means of making sound signals and distress signals, in accordance with the requirements of the Convention and the International Regulations for Preventing Collisions at Sea in force;
- 2.6 in all other respects the ship complied with the relevant requirements of the Convention.
- 2.7 the ship ~~was~~ was not²⁾ subjected to an alternative design and arrangements in pursuance of regulation(s) II-2/17 / III/38²⁾ of the Convention;
- 2.8 a Document of approval of alternative design and arrangements for fire protection / life-saving appliances and arrangements²⁾ ~~is~~ is not²⁾ appended to this Certificate.
- 3 That an Exemption Certificate ~~has~~ has not²⁾ been issued.

This Certificate is valid until³⁾ **12 October 2016**
subject to the annual and periodical surveys in accordance with regulation I/8 of the Convention.
Completion date of the survey on which this certificate is based: **30 September 2011**

Issued at **Tokyo** on **17 February 2014**

The undersigned declares that he is duly authorized by the said Government to issue this certificate.

(Y. Yamazaki)
General Manager of Classification Department
NIPPON KAIJI KYOKAI

Note: This certificate was rewritten because all outstanding recommendations were cleared.

2) Delete as appropriate
3) Insert the date of expiry as specified by the Administration in accordance with regulation I/14(a) of the Convention. The day and the month of this date correspond to the anniversary date as defined in regulation I/2(n) of the Convention, unless amended in accordance with regulation I/14(h).



Page 1 of 4

**RECORD OF EQUIPMENT FOR THE CARGO
 SHIP SAFETY EQUIPMENT CERTIFICATE (FORM E)**
 This Record shall be permanently attached to the Cargo Ship Safety Equipment Certificate.
 Rewritten
 Record No. 14HO01004-SER
 (Ex.Cert.No. ST-14AW0010-SER)

**RECORD OF EQUIPMENT FOR COMPLIANCE WITH THE
 INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974,**
 as modified by the Protocol of 1988 relating thereto

1. Particulars of ship
 Name of ship : SICHEM AMETHYST
 Distinctive number or letters : 3EGQ6

2. Details of life-saving appliances

1 Total number of persons for which life-saving appliances are provided		23	
		Port side	Starboard Side
2	Total number of lifeboats	1	1
2.1	Total number of persons accommodated by them	23	23
2.2	Number of totally enclosed lifeboats (regulation III/31 and LSA Code, section 4.6)	---	---
2.3	Number of lifeboats with a self-contained air support system (regulation III/31 and LSA Code, section 4.8)	---	---
2.4	Number of fire-protected lifeboats (regulation III/31 and LSA Code, section 4.9)	1	1
2.5	Other lifeboats		
2.5.1	Number	---	---
2.5.2	Type	---	---
2.6	Number of freefall lifeboats		
2.6.1	Totally enclosed (regulation III/31 and LSA Code, section 4.7)		---
2.6.2	Self-contained (regulation III/31 and LSA Code, section 4.8)		---
2.6.3	Fire-protected (regulation III/31 and LSA Code, section 4.9)		---
3	Number of motor lifeboats (included in the total lifeboats shown above)	N.A.	
3.1	Number of lifeboats fitted with searchlights	N.A.	
4	Number of rescue boats	1	
4.1	Number of boats which are included in the total lifeboats shown above	1	

SER-88P 11.01



2. Details of life-saving appliances

5	Liferafts	
5.1	Those for which approved launching appliances are required	
5.1.1	Number of liferafts	---
5.1.2	Number of persons accommodated by them	---
5.2	Those for which approved launching appliances are not required	
5.2.1	Number of liferafts	2
5.2.2	Number of persons accommodated by them	50
5.3	Number of liferafts required by regulation III/31.1.4	---
6	Number of lifebuoys	10
7	Number of lifejackets	27
8	Immersion suits	
8.1	Total number	27
8.2	Number of suits complying with the requirements for lifejackets	---
9	Radio installations used in life-saving appliances	
9.1	Number of search and rescue locating devices	2
9.1.1	Radar search and rescue transponders (SART)	2
9.1.2	AIS search and rescue transmitters (AIS-SART)	---
9.2	Number of two-way VHF radiotelephone apparatus	3

3. Details of navigation systems and equipment

Item	Actual provision
1.1 Standard magnetic compass ¹⁾	Fitted
1.2 Spare magnetic compass ¹⁾	Gyro compass repeater
1.3 Gyro compass ¹⁾	Fitted
1.4 Gyro compass heading repeater ¹⁾	Fitted
1.5 Gyro compass bearing repeater ¹⁾	Fitted
1.6 Heading or track control system ¹⁾	Heading Control System

¹⁾ Alternative means of meeting this requirement are permitted under regulation V/19. In case of other means they shall be specified.



3. Details of navigation systems and equipment

Item	Actual provision
1.7 Pelorus or compass bearing device ¹⁾	Fitted
1.8 Means of correcting heading and bearings	Fitted
1.9 Transmitting heading device (THD) ¹⁾	Gyro compass
2.1 Nautical charts / Electronic chart display and information system (ECDIS) ²⁾	Fitted
2.2 Back up arrangements for ECDIS	---
2.3 Nautical publications	Fitted
2.4 Back up arrangements for electronic nautical publications	---
3.1 Receiver for a global navigation satellite system / terrestrial radionavigation system ^{1), 2)}	GPS receiver
3.2 9 GHz radar ¹⁾	Fitted
3.3 Second radar (3GHz 9GHz ^{2), 1)}	Fitted
3.4 Automatic radar plotting aid (ARPA) ¹⁾	---
3.5 Automatic tracking aid ¹⁾	Fitted
3.6 Second automatic tracking aid ¹⁾	Fitted
3.7 Electronic plotting aid ¹⁾	---
4.1 Automatic identification system (AIS)	Fitted
4.2 Long-range identification and tracking system	Fitted
5.1 Voyage data recorder (VDR) ²⁾	Fitted
5.2 Simplified voyage data recorder (S-VDR) ²⁾	---
6.1 Speed and distance measuring device (through the water) ¹⁾	Fitted
6.2 Speed and distance measuring device (over the ground in the forward and athwartship direction) ¹⁾	---
6.3 Echo sounding device ¹⁾	Fitted
7.1 Rudder, propeller, thrust, pitch and operational mode indicator ¹⁾	Fitted
7.2 Rate of turn indicator ¹⁾	---

1) Alternative means of meeting this requirement are permitted under regulation V/19. In case of other means they shall be specified.
 2) Delete as appropriate.





3. Details of navigation systems and equipment

Item	Actual provision
8 Sound reception system ¹⁾	---
9 Telephone to emergency steering position ¹⁾	Fitted
10 Daylight signalling lamp ¹⁾	Fitted
11 Radar reflector ¹⁾	---
12 International Code of Signals	Fitted
13 IAMSAR Manual, Volume III	Fitted
14 Bridge navigational watch alarm system (BNWAS)	Fitted

THIS IS TO CERTIFY that this Record is correct in all respects.

Issued at Tokyo on 17 February 2014


(T. Yamazaki)
General Manager of Classification Department
NIPPON KAIJI KYOKAI



¹⁾ Alternative means of meeting this requirement are permitted under regulation V/19. In case of other means they shall be specified.



12.13 Fire Drill Schedule

Drill Plans for Year 2014														
B. Fire and Explosion Drills														
Drill Description ##	Applicable to	Periodicity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Fire in Galley (SOLAS)	All	6 Mthly	05 x						X					
Fire in Paint locker (SOLAS)	All	6 Mthly		10 x						X				
Fire in Accommodation (SOLAS)	All	6 Mthly			08 x						X			
Fire and Explosion in Engine Room (SOLAS) (include CO2 release simulation)	All	6 Mthly				X						X		
Explosion on board in fuel tank.	All	6 Mthly					X						X	
Fire in Cargo hold/Tanks - in port (SOLAS)	All	6 Mthly						X						X

C. Pollution Prevention drills														
Drill Description	Applicable to	Periodicity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cargo / Bunker oil spill near manifold due hose burst / leaking flanges (SOPEP) **	All	3 Mthly	25 x			X			X			X		
Bunker / cargo tank overflow ** (SOPEP)	All	3 Mthly		10 x			X			X			X	
Hull failure leading to Pollution (Bunker / Cargo) leakage (SOPEP)	All	3 Mthly			02 x			X			X			X

Merchant Marine General Directorate

Department of Maritime Casualty Investigations

Report: M/V "SICHEM AMETHYST"R-038-14-DIAM



BERNHARD SCHULTE 
SHIPMANAGEMENT

Form No: SHE - 54

DRILL REPORT

Name of Vessel M.T. SICHEM AMETHYST Date 08 Mar'14
Type of drill Fire in Accommodation – Laundry Room
Vessel's Position St. Malo Anchorage
Weather condition Slight Sea
Alarm sounded /Time 1529 Hrs Crew mustered / Time 1530Hrs

Summary of

General alarm sounded, "Fire in the Laundry Room" Public address by Master. Crew proceeded to respective Fire stations, Laundry Room electrically isolated, vents shut off, Boundary cooling carried out, Fire parties on suits, extinguished the fire, Fire out.

Minutes on completion of drill:


1529: Fire Alarm Activated and announced Fire in the Galley.
1530: Crew Mustered and reported all hands are present at their stations,
1532: Galley electrically isolated. Ventilations shut, fire pumps running.
1533: Emergency team No. 1 & 2, medical party and engine party standing by, waiting for orders, Bridge party ready to send distress alerts. Boundary cooling commenced, attack party on outfits, SCBA fully charged. Ready to extinguish the fire. CO2 portable extinguishers on hand.
1535: Emergency Fire pump tried out.
1536: Master ordered to fight the fire with caution to electric shock.
1537: Fire party no. 1 & 2 proceeded as ordered.
1545: Chief off reported fire out.
1548: Master announced fire drill completed.

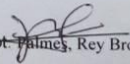
Debriefing by Master:

Master debriefed the crew about the importance of Raising the alarm, immediate and appropriate action required in the situation. And to monitor the area even after fire is extinguished.

Master's Remarks

All hands showed good response, cooperation and good communication.

Safety Officer:  C/Off Andrew A. Ladaga.

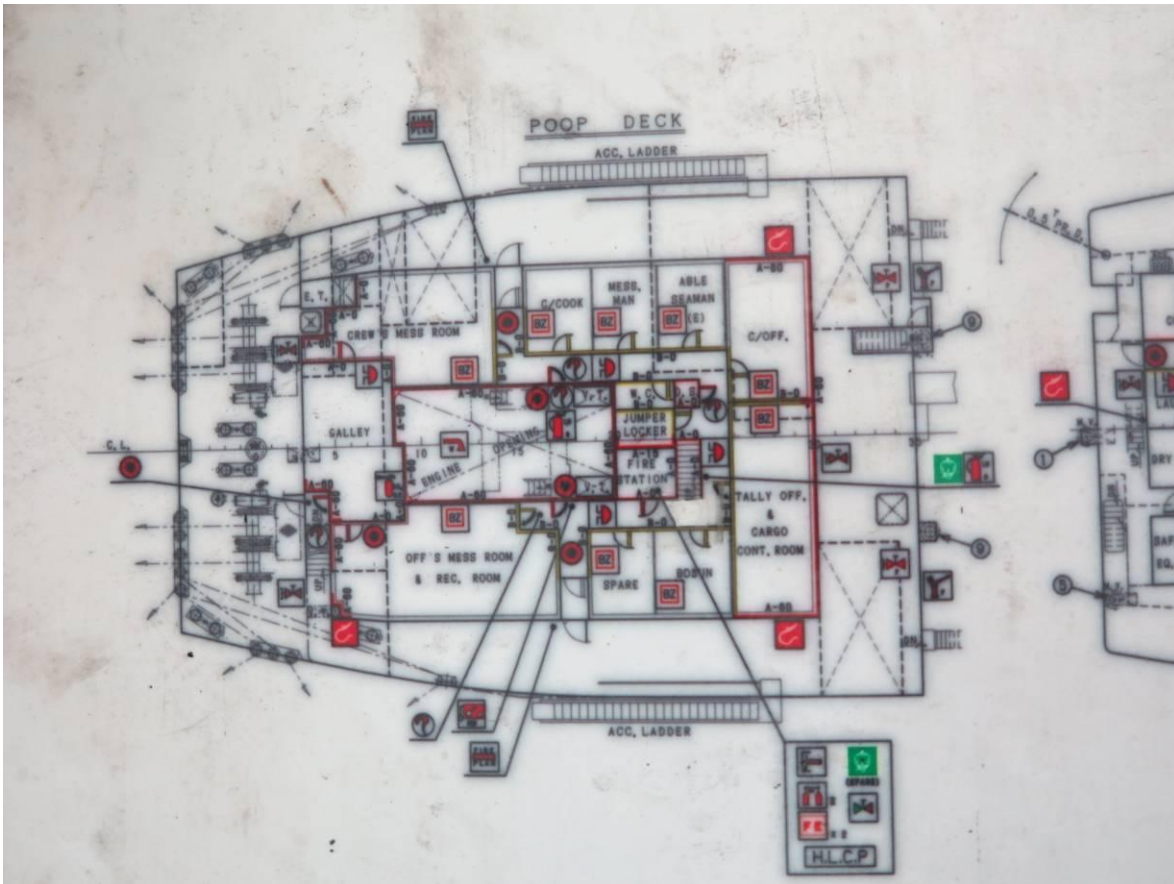
Master:  Capt. Jaime Rey Bronzal.

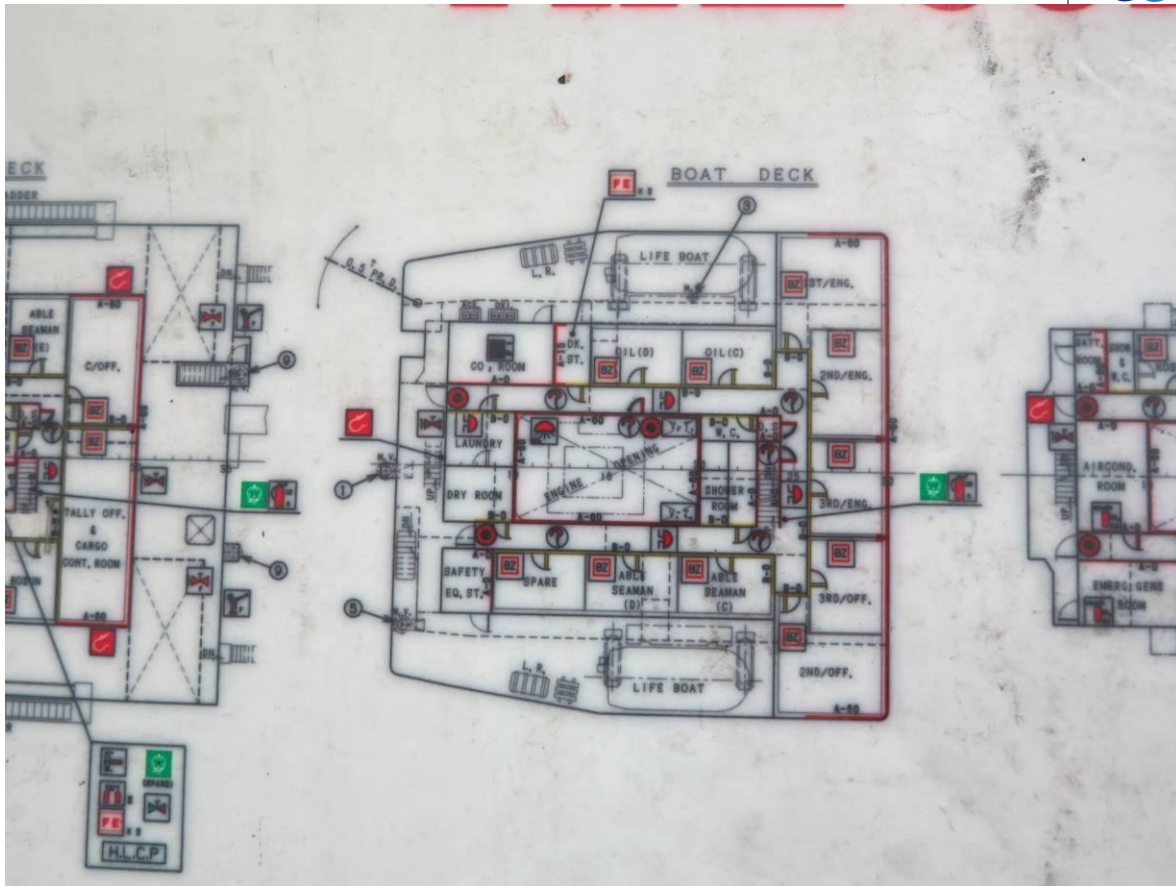
Date: 08-Mar-14

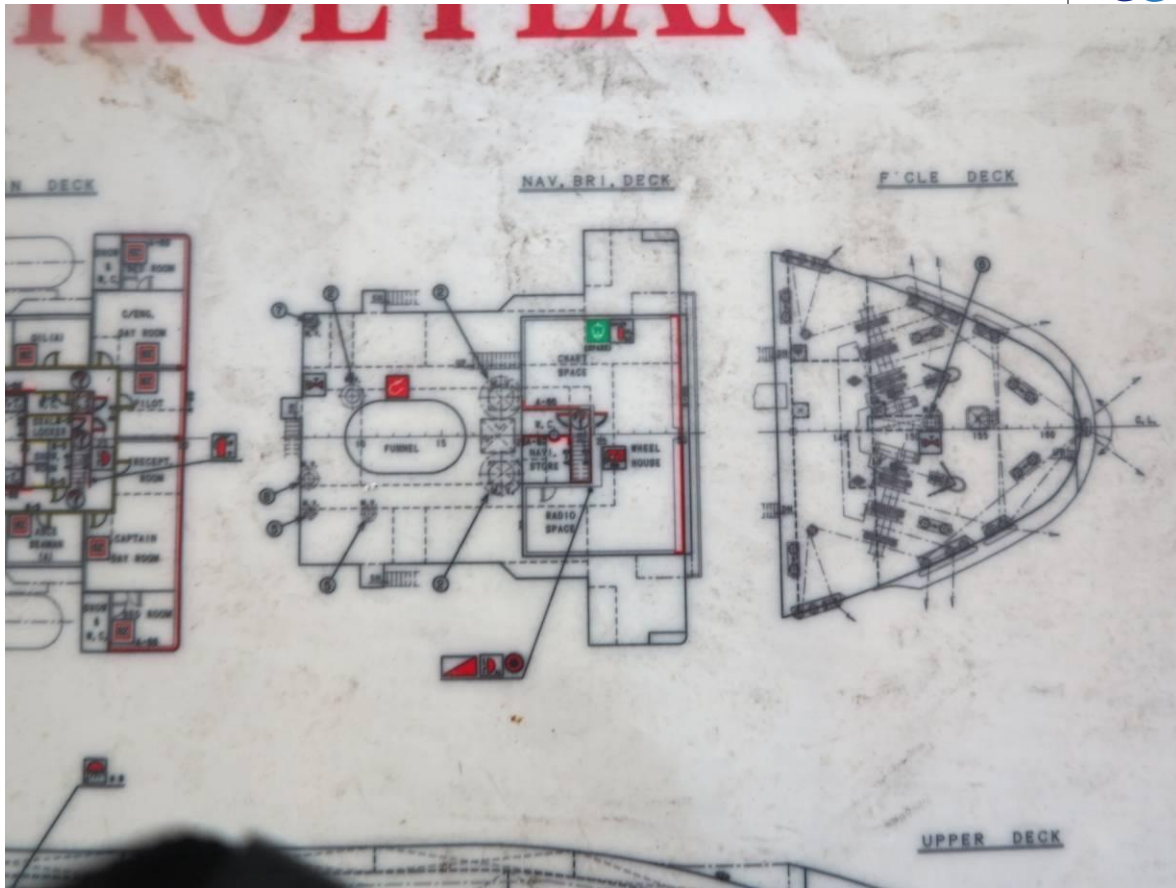
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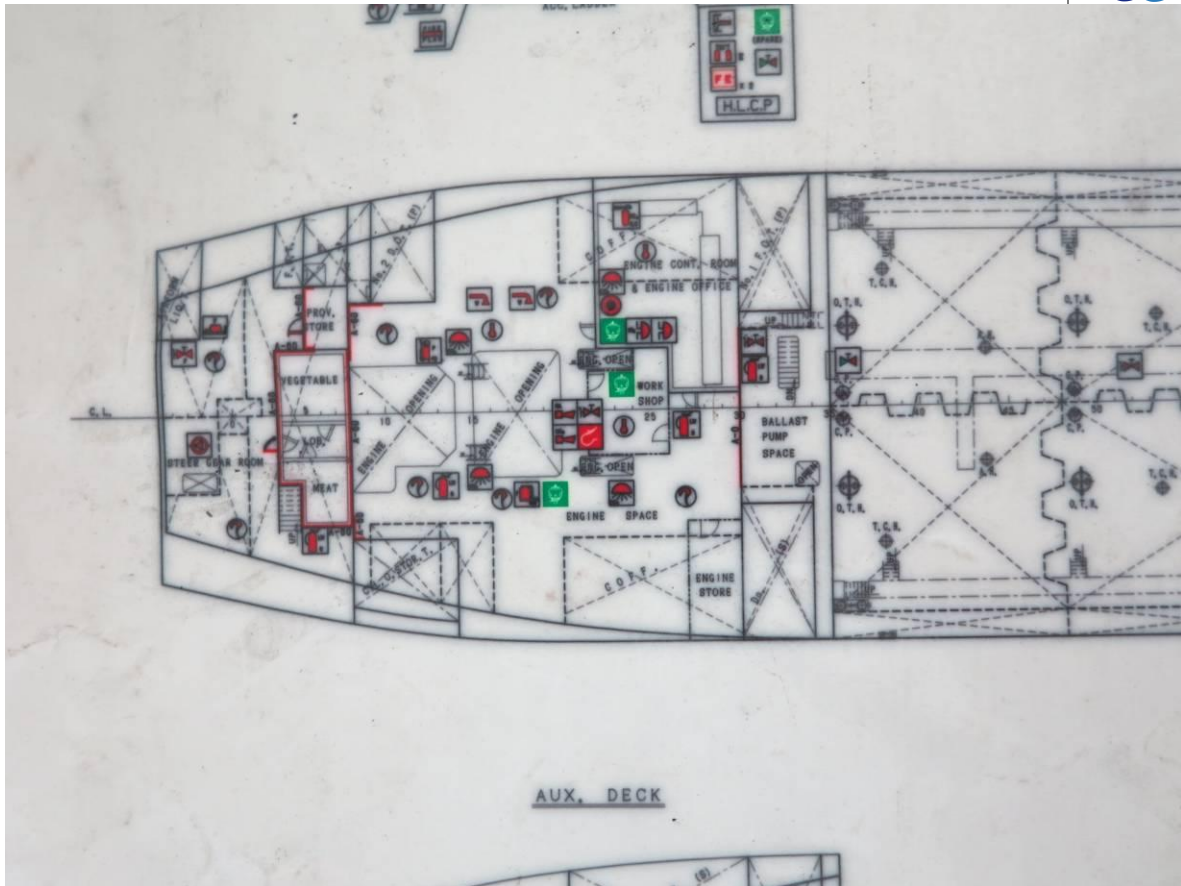
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12.14 Fire Plan used









Merchant Marine General Directorate

Department of Maritime Casualty Investigations

Report: M/V "SICHEM AMETHYST" R-038-14-DIAM



12.15 Muster List

MUSTER STATION		Funnel Deck	ALTERNATE MUSTER STATION	Stbd Side Poop Deck	(Recommended to be made Accommodated)						
MUSTER LIST AND EMERGENCY INSTRUCTIONS											
Vessel Name <u>Sichem Amethyst</u>			Fire Alarm (Automatic Activation/Push Button) Continuous Ringing on the alarm bells (as programmed on vessel by the yard) and announcement on Public Address System (if fitted).								
General Emergency Alarm Seven or More Short Blasts followed by One long Blast on whistle and alarm bells.			Abandon Ship Only by verbal order of the Master or the Officer in Command								
ABANDONSHIP DUTIES		EMERGENCY DUTIES									
RANK	NAME	DAVIT LAUNCHED LIFEBOAT	FREE FALL LIFE BOAT	FIRE DUTIES	SOPEP DUTIES	RESCUE BOAT / MOB PARTY	RA				
Master	Palms, Ray B.	Over All Incharge	Over All Incharge	Overall Command on Bridge	Overall Command on Bridge	Overall Command on Bridge	Master				
Chief Officer	Lapada, Andrew A.	Incharge Of Lifeboat And Carry Documents		In Charge of Deck Fire	Stop Cargo Operations and takes charge of spill containment/cleanup	Incharge of Rescue Boat	C/O				
2nd Officer	Madrigue, Juan Cesar F.	Incharge of Life Boat & Carry documents		Incharge of First Aid / Preparing Rescue Boat	Incharge of First Aid / Preparing Rescue Boat (if necessary for containment of oil spill)	Incharge of Launching / Recovery of Rescue Boat	2/O				
3rd Officer	Delah, Charles G.	Bring GMDSS W/Talkie		Assist Master in Communications and record minutes	Assist Master in Communications and record minutes	Communications on Bridge	3/O				
Jr. 3rd Officer	Shems, Rafael	Assist Chief Officer (Incharge of Boat)		Assist 2nd officer in preparing Rescue Boat	Assist 2nd officer in preparing Rescue Boat	Assist in preparing Rescue Boat	Jr.3/O				
Chief Eng.	Rivas, Francisco	Incharge of Life Boat Engine		In Charge of Engine Room & Assist fire party as reqd.	Stop Bunkering and Co-ordinates with Ch. Off in Containment and Cleanup	Small Incharge in Engine Room/ Engines for maneuvering as may be required	C/Eng				
1st Eng.	...	Incharge of Life Boat Engine		In Charge of Engine Fire	Assist Ch. Eng. In Containment	Incharge of Rescue Boat Engine	1/Eng				
2nd Eng.	...	Emergency Lights, Embarkation Lights/ Disconnect Battery charging connection.		Start Emergency Fire Pump	Assist 2nd Eng. In Containment	Assist Chief Engineer in engine room	2/Eng				
3rd Eng.	...	Clear FWD Gripes Bowsing Tackle, Remove Harbour Pin, Discard, Charging Wire		Isolate Power Switches & assist Deck/Engine fire party as reqd.	In charge of power supply, Circuit isolation, Lighting etc & Assist Chief Eng as necessary	Embarkation Lights/ Check winch power supply	3/Eng				
Boatman	...	Winch operator, lower Embarkation ladder		Bring Fire Hose / In charge of Boundary Cooling	Assist Ch. Eng./Ch. Off. leads squads of ratings in containment and cleanup	(In Rescue Boat) Assist Rescue operations	Boatman				
Engine Assistant	...	Winch operator, lower Embarkation ladder		Shut Vents, Fire & Water Tight Doors		Prepare for recovery of boat	Eng. Assit				
AB-1	...	Secure Bottom Plug, Rig Tiller/where applicable, Helmsman		Main Fire Fighter wearing Fire Fighters outfit (Deck Fire) & Back up for Engine fire		(In Rescue Boat) Assist Rescue operations	AB-1				
AB-2	...	Secure Bottom Plug, Rig Tiller/where applicable, Helmsman		Standby Fire Fighter wearing Fire Fighters outfit (Deck Fire) & Back up for Engine fire		Look Out duty	AB-2				
AB-3	...	Bring SART & EPIRB		On Bridge Helmsman		Helmsman On Bridge	AB-3				
OS-1	...	Clear FWD Gripes Bowsing Tackle, Remove Harbour Pin, Bring SART, Pyrotechnics		Bring Fire Hose / Boundary Cooling	Assist in containing Spill Onboard, Deploy ROPV Equipment And Start Cleanup As Directed by C/O	Prepare for recovery of boat	OS-2				
Motorman-1	...	Clear AH Gripes, Bowsing Tackle / Incharge of L/Raft		Main Fire Fighter wearing Fire Fighters outfit (Engine Fire) & Back-up for Deck fire		(In Rescue Boat) Assist Rescue operations	Mtm-1				
Motorman-2	...	Clear AH Gripes, Bowsing Tackle / Incharge of L/Raft		Standby Fire Fighter wearing Fire Fighters outfit (Engine Fire) & Back-up for Deck fire		Prepare for recovery of boat	Mtm-2				
Motorman-3	...	Assist the 2nd Officer (Incharge of Boat)		Assist Chief Engineer in Engine Room		Assist Chief Engineer in Engine room	Mtm-3				
Chief Cook	...	Bring Blanket and extra provisions		First Aid & Stretcher / Prepare Rescue Boat		First Aid and Blankets	C/Cook				
Mess Man	...	Bring Blanket and extra provisions		First Aid & Stretcher / Prepare Rescue Boat		First Aid and Blankets	Mtm				
Supernumerary		Act as Ordered		Act as Ordered		Act as Ordered					
ABANDONSHIP INSTRUCTIONS		FIRE INSTRUCTIONS		GENERAL INSTRUCTIONS		GENERAL INSTRUCTIONS (Continued)		Life-Saving Equipment			
<p>1. When General Alarm is sounded, wear suitable clothing, helmets, shoes and proceed to designated Muster Stations, carrying the life jacket and immersion suit.</p> <p>2. Proceed to lifeboat stations when instructed and prepare the life boats, life rafts, equipment, etc. as per duties assigned.</p> <p>3. Obey all instructions of the officer I/C, if officer I/C is not present, the second in command or next senior personnel will assume leadership.</p> <p>4. Boat Incharge will inform the bridge if any person is missing.</p> <p>5. All orders given, when to be repeated before and after carrying out the orders.</p> <p>6. Lower lifeboats (and or liferafts) to sea only when verbal order is given by the Master.</p> <p>7. GMDSS Hand held radios only are to be used in Abandonship Stations.</p> <p>8. In case of Free Fall Life Boat, Straps (worn) inside the boat with Life Jacket on lap or by the side.</p>		<p>1. If Fire is spotted or suspected, immediately sound Alarm(push button) and get assistance. In case of small fires, the person detecting the fire should also meantime try to extinguish and restrict the fire as far as practical.</p> <p>2. In Case of major fire, If Fire Alarm is heard, muster at their respective station immediately.</p> <p>3. Chief Officer or appointed person will take head count and inform bridge if any one is missing.</p> <p>4. If no one is missing cut off fresh air supply to the space affected by closing ventilator doors, portholes and other accesses, under instructions of Chief Officer or 2nd Engineer</p> <p>5. Prepare the Fire-fighters Outfit and have ready at hand the Fire hoses and extinguishers for use. (Refer duties list)</p>		<p>1. The Master is to ensure that duties as specific to his Vessel are assigned on this Muster list.</p> <p>2. Assemble at Muster Stations (or alternate if main Station is unapproachable), on hearing the alarm. Bridge Team consisting of Master, 3rd Officer and AB3 are to assemble on the Bridge.</p> <p>3. Supernumeraries/Passengers are to assemble on the Bridge.</p> <p>4. The 3rd Officer under guidance of the Chief Officer is responsible for maintaining all LSA and PFA on board in good condition and ready for immediate deployment.</p> <p>5. The Engineer on watch will continue to remain on watch until relieved by any person designated by Master, unless otherwise instructed.</p> <p>6. When any of the personnel in charge becomes disabled, his place is to be filled by the person just below in rank. Key Substitutes are: Master - Chief Officer Chief Officer - 2nd Officer 2nd Engineer - 3rd Engineer 3rd Engineer - 3rd Officer</p> <p>Communication Channel in Emergency is 03</p>		<p>8. Responsibility for closing of water tight doors, fire doors, Sky lights, Valves in Engine room are assigned to the duty Engineer or any other person by Chief Engineer.</p> <p>9. Responsibility for closing scuttles, deck valves, side scuttles, port holes and other similar openings are assigned to a ship's personnel by Chief Officer.</p> <p>10. All persons are to know the locations and use of all firefighting equipment on board.</p> <p>11. On passenger ships, duties are assigned to personnel as deemed fit by the Master or person in charge to deal with passengers e.g. warning passengers, verifying correct donning of life jackets/ immersion suits, assembling passengers to the respective life boats as directed, maintaining order and supplying blankets to the survival crafts etc.</p>		<p>WHEN VESSEL IN PORT</p> <p>1. Visitors and shore labour will proceed ashore. Further, as Emergency party will be immediately formed from the available ship's personnel. They will proceed to the emergency taking with them suitable equipment.</p> <p>2. The Master or second in command should contact the local fire service and Port authorities/agents etc. (details to be posted/readily available) and apprise them of the situation. Assistance may be requested where deemed necessary. Local/port regulations are to be followed.</p>		<p>Locations:</p> <p>1. Life Jackets/Immersion suits Each Cabin, WC, E/R, etc.</p> <p>2. TPA L/Boats</p> <p>3. Life Rafts: Poop Deck, Boat Deck, Bridge, Aft Deck</p> <p>4. GMDSS Radios with Inge</p> <p>5. Line Throwing Appliances with Inge</p> <p>6. Distress Buckets with Inge</p> <p>7. EPIRB/SART on the wing/bridge</p> <p>8. EEBD: Bridge, Each Deck, L/R Platform</p>	
<p>POSTED AT</p> <p>1) BRIDGE 2) ENGINE ROOM 3) ONE ON EACH DECK</p>		<p>LAST UPDATED ON: 30 Mar 2014</p> <p>MASTER</p>		<p>Issued by Group (FSG) Issue No. 1 (Dated August 2008)</p>		<p>MSI</p>					

12.16 *MANX Marine Notice referring to Fire outfits*



MANX SHIPPING NOTICE

MSN 040

Amended: 19/10/2012

DEPARTMENT OF ECONOMIC DEVELOPMENT

Fire fighting protective clothing

Amended following receipt of additional technical input, the aim of this notice is to provide guidance to Ship Owners and Operators regarding the different suitability of approved protective clothing used in fire fighting on board ships.

Legislation relevant to this notice:

SOLAS 1974 as amended, Chapter II-2, regulation 10

Fire Safety Systems Code (2007 edition), Chapter 3, part 2.1

Depending on the keel laying date of the vessel:-

MS (Fire Protection) regulations 1984 *regulations 11, 21, 37, 53 and 69 or;*

MS (Fire Appliance) regulations 1980 *regulations 12, 23, 39, and 71 or;*

MS (Fire protection)(Ships built before 25th May 1980) regulations 1985 *regulations 10, 21, 35, 52 and 69.*

Most regulations and notices are available on the Isle of Man Government web site:

www.iomshipregistry.com or by contacting marine.survey@gov.im

SOLAS Chapter II-2 Regulation 10 and the associated Manx Regulations require that a cargo ship carry a minimum of two sets of fire-fighting outfits complying with the requirements of the Fire Systems Code. This notice refers specifically to the requirements for the personal equipment to be provided under that Code.

The Code requires that the personal equipment shall consist of the following:

- a) Protective clothing of material to protect the skin from the heat radiating from the fire and from burns and scalding by steam. The outer surface shall be water resistant;
- b) Boots of rubber or other electrically non-conducting material; and
- c) Rigid helmet providing effective protection against impact.

Following a recent casualty investigation, it has become apparent that some older vessels are supplied with fire proximity suits (testing standard EN 531 or their direct equivalents), which, whilst complying with the above requirements for open spaces, may not provide the wearer sufficient thermal protection from radiated heat if entering an enclosed space (includes machinery and accommodation spaces) where an established fire is located¹.

The Isle of Man Ship Registry therefore strongly recommends for use in any area of the vessel, that new "fire-fighting suits" comply as a minimum, with the standards specified in the table (or their equivalent national or international standards) as this will give the designed protection in both open and enclosed spaces, and that equipment not meeting those standards listed, be considered for replacement when possible.

Merchant Marine General Directorate

Department of Maritime Casualty Investigations

Report: M/V “SICHEM AMETHYST”R-038-14-DIAM



Item designation	Regulation SOLAS 74 where "type approval" is required	Regulations of SOLAS 74 and the relevant resolutions and circulars of the IMO, applicable	Testing standards
Fire-fighter's outfit: protective clothing – (close proximity clothing)	– Reg. II-2/10, – Reg. X/3, – IMO Res. MSC.98(73)- (FSS Code) 3.	– Reg. II-2/10, – IMO Res. MSC.36(63)-(1994 HSC Code) 7, – IMO Res. MSC.97(73)-(2000 HSC Code) 7, – IMO Res. MSC.98(73)-(FSS Code) 3.	– EN 469:2005, inc. A1:2006 and AC:2006 – EN 1486:2007, Or, – ISO 15538:2001 Level 1
Fire-fighter's outfit: boots	– Reg. II-2/10, – Reg. X/3, – IMO Res. MSC.98(73)- (FSS Code) 3.	– Reg. II-2/10, – IMO Res. MSC.36(63)-(1994 HSC Code) 7, – IMO Res. MSC.97(73)-(2000 HSC Code) 7, – IMO Res. MSC.98(73)-(FSS Code) 3.	– EN ISO 15090:2006, – EN ISO 20344:2004, inc A1:2007 and AC:2005 – EN ISO 20345:2004 inc A1:2007 and AC:2007
Fire-fighter's outfit: gloves	– Reg. II-2/10, – Reg. X/3, – IMO Res. MSC.98(73)- (FSS Code) 3.	– Reg. II-2/10, – IMO Res. MSC.36(63)-(1994 HSC Code) 7, – IMO Res. MSC.97(73)-(2000 HSC Code) 7, – IMO Res. MSC.98(73)-(FSS Code) 3.	– EN 659:2003, inc A1:2008 and AC:2009 – EN 60903:2003 (for conductivity only).
Fire-fighter's outfit: helmet	– Reg. II-2/10, – Reg. X/3, – IMO Res. MSC.98(73)- (FSS Code) 3.	– Reg. II-2/10, – IMO Res. MSC.36(63)-(1994 HSC Code) 7, – IMO Res. MSC.97(73)-(2000 HSC Code) 7, – IMO Res. MSC.98(73)-(FSS Code) 3.	– EN 443:2008
Fire-fighter's outfit: Self contained compressed air breathing apparatus	– Reg. II-2/10, – Reg. X/3, – IMO Res. MSC.98(73)- (FSS Code) 3.	– Reg. II-2/10, – IMO Res. MSC.36(63)-(1994 HSC Code) 7, – IMO Res. MSC.97(73)-(2000 HSC Code) 7, – IMO Res. MSC.98(73)-(FSS Code) 3.	– EN 136:1998 inc AC:2003 – EN 137:2006

¹ Close proximity clothing stating "not suitable for fire entry", "not a fire entry suit" (or similar) may be freely used for protection when boundary cooling fires or for search and rescue in an enclosed space without a fire. It may also be used **with extreme caution** for search and rescue purposes or fire fighting within an enclosed space that also has a fire **in its early stages** (garment actual contact with flames must be avoided at all times).

Vessels existing equipment may continue to be used but the indicated standards are recommended when equipment is replaced due to wear and tear or use in a fire situation.

We would urge shipowners and ships staff to check vessel's equipment in order they are aware of the correct use of the outfits supplied.

Isle of Man Ship Registry – October 2012

Please note - The Isle of Man Ship Registry cannot give Legal Advice. Where this document provides guidance on the law it should not be regarded as definitive. The way the law applies to any particular case can vary according to circumstances - for example, from vessel to vessel. You should consider seeking independent legal advice if you are unsure of your own legal position.

