INVENTORY of HAZARDOUS MATERIALS

Jan Steen

PROJECT 155.17

Principal
Van Oord Shipmanagement B.V.
Graanweg 28
4782 PP Moerdijk
The Netherlands

Prepared by:
Sea2Cradle B.V.
Scheepmakershaven 59
3011 VD Rotterdam
The Netherlands

Date: IHM Part 1 report completed 24 October 2017

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TERMS OF REFERENCE

Version 19th of June 2017

a. Assignment

Aim of the survey

The aim of this survey is to provide an IHM (Inventory Hazardous Materials) on existing ships (Table A, Part 1).

The survey is based on:

- The IMO Hong Kong International Convention for the safe and environmentally sound recycling of ships, May 19th 2009, further mentioned as the Hongkong Convention;
- MEPC 269(68) Guidelines for the developments of the Inventory of Hazardous Materials, further mentioned as the Guideline;
- Dutch NSI Instruction, "Ban the Use of Asbestos on board ships" further mentioned as the Instruction where applicable.
- US EPA guidelines where applicable
- Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants, amending Directive 79/117/EEC (OJ L 158, 30.4.2004, p. 7) and Regulation 1257/2013 for EU flagged ships.

The IHM Part 1A is restricted to the following substances:

- Asbestos ;
- PCBs (Polychlorinated Biphenyls);
- ODS (Ozone Depleting Substances);
- TBT in anti-fouling (Organic tin compounds);
- Perfluorooctane sulfonic acid (PFOS)

IHM Part 1B is mandatory for existing vessels under the new EU regulation and will be completed as far as practicable.

Assignment

Our assignment is restricted to a non-destructive survey based on a Visual/Sampling Check and information made available by the ship owner and the owner's representative on board, according to our standard survey procedures.

The asbestos and PCB survey has been carried out as a random check of the systems and components as mentioned in the Guideline and including the additives as mentioned in the Instruction. The complete list, including remarks, is added as an appendix to this report.

The PCB survey for US flagged ships has been carried out basis U.S. EPA guidelines to prove the absence of PCB containing materials

Destructive research, or research of secondary contaminations as a result of possible damages of asbestos or PCB containing materials, are not part of the assignment and are as a consequence not included in this report unless there is a reasonable expectation for hidden hazardous materials.

Liability and accuracy

Although we aim for maximum accuracy, an accuracy of 100% is not feasible. Therefore our agency cannot be held liable for any damage as a result of hazardous materials that are not mentioned in this inventory. These can be materials that were unreachable and consequently

excluded from inspection, materials that are not recognized as hazardous, and materials that were not mentioned as hazardous in the report and are found on board at a later stage.

Safety
Advice will be sought from the senior management of the vessel/structure, prior to commencing any inspection, as to any restricted or unsafe areas. Additionally, it is the decision of the surveyor to omit any other area which he/she assesses as unsafe for whatever reason. Restricted or unsafe areas will be noted in the VSCP.

b. Survey results

Desk Research
For our desk research all available relevant documents are consulted. These are listed in the Visual/Sampling Check Plan (VSCP)

Visual inspection
To meet the IMO standard the inspection is carried out following our in-house developed general standard "Visual/Sampling Check Plan"
Several materials on board are sampled, a complete overview of the sampled materials and sample locations are shown in the analysis results and on the floor plans.

c. Investigation Methods

➢ ASBESTOS

DEFINITION
Asbestos can be defined as a group of fibrous materials like silicates. According to the Guideline asbestos is material that contains one of the following substances:

- Chrysotile (CAS nr 12001-29-5;
- Amosite (CAS nr 12172-73-5);
- Crocidolite (CAS nr 12001-28-4);
- Tremolite (CAS nr 77536-68-6);
- Anthofilite (CAS nr 77536-67-5);
- Actinolite (CAS nr 77536-66-4).

LAWS AND REGULATIONS

- As domain of the Dutch Ministry of Infrastructure and Environment concerning ship inspection, the Dutch Shipping Inspectorate has issued instructions to ban the use of asbestos on board ships in order to implement SOLAS II-I regulation 3-5 and MSC.1/Circ 1379. An asbestos survey is conducted on board compliant with these Dutch Shipping Inspectorate instructions,
- Dutch certified survey bureaux (SC540) will perform in principle the asbestos survey. Inspectors deployed are personally certified according the guideline SC560,"Expert Surveyor Asbestos" by IBEX a certification body accredited to ISO 17024.
- Lab testing , according our certification guideline, will be ordered to accredited laboratories (ISO 17025), e.g. Fibrecount Environmental Control in Rotterdam, The Netherlands.

From 1 January 2011 the new installation of materials which contain asbestos is prohibited.
In short the Dutch Shipping Inspectorate instructions are:

1.	Vessels in new build but not yet delivered:	Remove before delivery
2.	Vessels delivered on or after 1st January 2011:	Remove immediately
3.	Vessels delivered after 1st July 2002:	Remove within 3 years after discovery
4.	Vessels delivered before 1st of July 2002:	Remove immediately -in case of Health risk

AIM

The aim of the survey is to prove that, based on the method as described in the Instruction, no asbestos containing materials are installed on board the vessel which is in violation with the SOLAS requirements

SCOPE

The inspection is restricted to a random sampling procedure on the used materials on board the vessel. The list of components as published in the Guideline, including its additions prescribed in the Instruction, is used as a guideline. The complete list includes a brief description of our observations on board and is added as an appendix to this report.

The inspection is restricted to non-destructive inspection. Unless otherwise agreed, no dismantling, cutting or breaking on behalf of the inspection of construction, equipment or components is part of the inspection.

OBSERVATIONS AND RESTRICTIONS

The general restrictions and basic principles that apply to our inspections are discussed below.

Engines, equipment and installations

Regarding the inspection of engines, auxiliaries, installations and other equipment, the following principles apply:

- Engines, auxiliaries, installations and other equipment will not be deconstructed. The inspection is limited to the exterior and parts that are directly accessible. Installation components will not be opened or damaged;
- Composite parts won't be opened or damaged;
- Inspection of pipe insulation will be based on randomly picked samples for each type of suspicious material. Our team leader will decide on the number of samples.

Installation materials such as gaskets, packings, rope or canvas tape and covers, which are applied on board by the yard or subcontractors, will be sampled randomly. Of each type a representative number of samples will be taken.

The evaluation of the used gaskets is based on a random sampling check and visual check for conformity of the majority of the flange connections on board.

Accommodation

Regarding the inspection of accommodation, the following principles apply:

- All cabins and living or functional areas where accessible for inspection, but the inspection is restricted to a representative number of random picked available cabins;
- The inspection focuses on fire resistant materials, such as wall and ceiling finishes, fire compartments (including transit), heat protection on exposed decks and other insulation materials;

- In addition, the inspection is focused on other visible and accessible places and materials, such as floor finishes, adhesives, sealant and paints.

Equipment such as AC units, bridge equipment, refrigerators and galley equipment is visually checked from the outside only, or through normal opening doors or hatches.

Decks, holds and fixtures
Regarding the inspection of other compartments than the accommodation, the following principles apply:

- All other compartments will be fully inspected, as far as the compartments are accessible;
- Vapour proof insulation on e.g. cooling systems, will not be damaged for further determination. The inspection will be restricted to accessible surfaces and via existing openings;
- Ballast, bunkers and drinking water tanks and other void spaces, inaccessible cofferdams, double bottom tanks, etc. will not be opened for inspection;
- Equipment like winches, windlasses and cranes will only be inspected from the exterior;
- Only bituminous coating and thick mastic coating (applied on accessible surfaces) will be sampled.

TESTING CRITERIA
The threshold level, as specified in the Hong Kong Convention, will function as testing criteria. However the current possibilities for analysis lead to a detection level of approximately 0.1% asbestos in the asbestos containing material. Below this detection level materials can be considered asbestos free.

The analysis of the sampling will be directed to the accredited laboratory of Fibrecount BV.

The results of the analysis are fully documented in the relevant Appendix to the IHM and positive results listed in the IHM.

Our inspection approach on vessel is based on sampling all materials with a particular reference to the IMO Indicative List, 2.2.3.2 in **RESOLUTION MEPC. 269(68)**

➢ POLY CHLORINATED BIPHENYLS (PCBs)

DEFINITION
PCBs can be defined as man-made synthetic chemicals. The group of PCBs consists of 209 different types (congeners). Fifty of these congeners are found in commercial chemical compounds. PCBs are used as insulating fluid in e.g. transformers, capacitors, oils such as hydraulic cooling and heating oil, and in materials such as plastics and oil based paints.

The convention has determined a threshold value for PCBs at 50 ppm.
The US EPA threshold levels are:

- 50 ppm for hazardous waste
- 10ug/100cm^2 for wipes
- 1.0 ppm for oils

TESTING CRITERIA

Testing of all congeners is not feasible in practice. Therefore, several organizations have drafted a list of indicator congeners to be tested. This list of seven congeners, which is used by the International Council for the Exploration of the Sea (ICES) and by several governments, forms the basis of our investigation, except for US Flagged vessels.

The ICES7 list consists of the congeners 28, 52, 101, 118, 138, 153 and 180. The analysis of these samples is restricted to a qualitative analysis ordered to UCL Umwelt Control Labor GmbH Germany.

The proposed threshold levels as specified in the Hong Kong convention will function as testing criterion.

Our inspection approach on vessel is based on sampling all materials with a particular reference to the IMO Indicative List, 2.2.3.3 in **RESOLUTION MEPC. 269(68)**

For US flagged vessels the analysis is based on the US EPA guidelines methodology 8081/8082 (see http://www.epa.gov/osw/hazard/testmethods/sw846/pdfs/8082a.pdf). The threshold levels are based U.S. EPA guidelines as well.
The analysis of these samples is restricted to a qualitative analysis ordered to EMSL Analytical, Inc, 200 Route 130 North, Cinnaminson, NJ 08077, U.S.A.

The results of the analysis are fully documented in the relevant Appendix to the IHM and positive results listed in the IHM.

➢ OZONE DEPLETING SUBSTANCES (ODS)

The inventory of ODS focuses on fixed items that are part of the construction or equipment of the ship, incorporating gaseous ODS. Portable items and domestic items such as refrigerators in cabins are not part of this inventory.
Materials likely to have been formed using ODS as blowing agents (e.g insulating materials) are sampled for analysis.
The analysis of these samples is restricted to a qualitative analysis ordered to UCL Umwelt Control Labor GmbH Germany

➢ ORGANOTIN COMPOUNDS (TBT) in anti-fouling

Inspection is based on the ship's certificates as required by the class society. Copies of the certificates are given in the relevant Appendix to the IHM. The original certificates will apply with the ships delivery.

➢ Perfluorooctane sulfonic acid (PFOS)

The inspection is concentrated on foam of fire extinguishers and carpets. Samples will be taken for further analyses ordered to UCL Umwelt Control Labor GmbH Germany.
PFOS was the key ingredient in Scotchgard, a fabric protector made by 3M, and numerous stain repellents. PFOS has been used to make aqueous film forming foam (AFFF), a component of fire-fighting foams, and alcohol-type concentrate foams.

PFOS compounds can also be found in some impregnation agents for textiles, paper, and leather; in wax, polishes, paints, varnishes, and cleaning products for general use; in metal surfaces, and carpets.
The threshold level is zero for new installations.

Particulars of the **Jan Steen**

Distinctive number or letters	**PEZV**
Port of Registry	**Gorinchem, The Netherlands**
Type of Vessel	**Stone carrier**
IMO Number	**8505707**
Name of Shipbuilder	**Verolme Heusden**
Name of Shipowner	**Van Oord Shipmanagement**
Date of Delivery	**01-02-1987**

Attachments :

- Zone and level Definitions
- Location Diagrams of Hazardous Materials on Board
- VSCP
- Asbestos documentation
- Hazmat documentation
- Paint documentation
- Radiation report

Survey carried out at Moerdijk, The Netherlands 05-10-2017

R.J.M. van Uffelen
On behalf of Sea2Cradle B.V.

Signature:

PART 1A - Materials Contained in Ship's Structure or Equipment
Materials Listed in Appendix 1 Table A

Code A1	Asbestos (threshold value 0.1%)		
Type of Asbestos Materials (board, pipe lagging, contained)	**Location**	**Approximate Quantity**	**Notes**
Gaskets	Engine room	60 kg (600 kg incl. flanges)	1, 2
Brake linings	Winch 4, 5 and 6	30 kg (150 kg with steel)	
Knife fuses	Electrical store	15 kg	3
1. 20 positive samples found. Estimate is approximate 6 gaskets / system. 2. Detailed locations can be found in attached report; PAM-40863 Type A report MV Jan Steen v2.0 3. Fuses in use in switchboards have not been inspected. All 'in use' fuses should be treated as potentially asbestos containing for removal and disposal. (Estimated 30 Kg)			

Caution: Asbestos Containing Material (ACM) may be found underneath materials that do not contain asbestos.

Code A2	Polychlorinated Biphenyls (PCBs) (threshold value 50 mg/kg)		
Material	**Location**	**Approximate Quantity**	**Notes**
		None found	

Code A3	Ozone Depleting Substances (no threshold value)		
Type	**Location**	**Approximate Quantity**	**Notes**
R22	3 AC units on bridge top deck	15,39 kg	1
R11/R12	Cold store rooms (in insulation)	2 kg (40 with material)	
Unknown (potentially ODS)	Airco unit ER foward PS		
1. Units were marked with both R22 and R407. It is suspected R22 has been replaced by R407 and labelling not amended.			

Code A4	Antifouling Organotin Compounds as a Biocide (threshold value 2500 mg/kg)		
Materials	**Location**	**Approximate Quantity**	**Notes**
		None	
Certificate available which states that the anti-fouling was completely removed in 21/11/2008			

* EU Regulation	Perfluorooctane sulfonic acid (PFOS) (no threshold value)		
Materials	**Location**	**Approximate Quantity**	**Notes**
		None found	
* for ships flying the flag of an EU Member country			

PART 1B - Materials Contained in Ship's Structure or Equipment
Materials Listed in Appendix 1 Table B

Code B1	Cadmium and Cadmium Compounds (threshold value 100 mg/kg)		
Type	**Location**	**Approximate Quantity**	**Notes**
		None found	

Code B2	Hexavalent chromium and hexavalent chromium compounds (threshold value 1000 mg/kg)		
Type	**Location**	**Approximate Quantity**	**Notes**
Paint constituent (White)	Bridge top deck	n.a.	1820 mg/kg
Paint constituent (Orange)	Bridge top deck	n.a.	9720 mg/kg
Paint constituent (Yellow)	Bridge top deck	n.a.	17500 mg/kg
Paint constituent (Red)	Handrail stairs A deck	n.a.	3090 mg/kg
Paint constituent (Orange)	Deck crane	n.a.	20300 mg/kg
All instances of the above paint colours should be considered potentially over the threshold value for Chromium			

Code B3	Lead and Lead Compounds (threshold value 1000 mg/kg)		
Type	**Location**	**Approximate Quantity**	**Notes**
Paint constituent (White)	Bridge top deck	n.a.	33200 mg/kg
Paint constituent (Orange)	Bridge top deck	n.a.	61100 mg/kg
Paint constituent (Yellow)	Bridge top deck	n.a.	115000 mg/kg
Paint constituent (Green)	Bridge top deck	n.a.	33600 mg/kg
Paint constituent (Black)	Stairs outside Bridge navigation deck	n.a.	4540 mg/kg
Paint constituent (Grey/red)	X Deck	n.a.	1680 mg/kg
Paint constituent (Red)	Handrail stairs A deck	n.a.	15300 mg/kg

Paint constituent (Orange)	Deck crane	n.a.	104000 mg/kg
All instances of the above paint colours should be considered potentially over the threshold value for lead			

Code B4	**Mercury and Mercury Compounds (threshold value 1000 mg/kg)**		
Type	**Location**	**Approximate Quantity**	**Notes**
Thermometer	A deck	2 pieces	

Code B5	**Polybrominated Biphenyl (PBB) (threshold value 50 mg/kg)**		
Type	**Location**	**Approximate Quantity**	**Notes**
	No record or documentation		

Code B6	**Polybrominated Diphenyl Ethers (PBDEs) (Threshold value 1000 mg/kg)**		
Type	**Location**	**Approximate Quantity**	**Notes**
	No record or documentation		

Code B7	**Polychlorinated Naphthalenes (PCN) (threshold value 50 mg/kg)**		
Type	**Location**	**Approximate Quantity**	**Notes**
	No record or documentation		

Code B8	**Radioactive Substances (no threshold value)**		
Type	**Location**	**Approximate Quantity**	**Notes**
Ionising Smoke detectors	See attached list for locations	< 67 in total	1.
1. Mix of ionising and optical detectors used around the vessel. Exact number of ionising detectors to be determined upon removal.			

Code B9	Shortchain Chlorinated Paraffins (threshold value 1%)		
Type	**Location**	**Approximate Quantity**	**Notes**
	No record or documentation		

EU Regulation	Hexabromocyclododecane (HBCDD) (Brominated flame retardant) (no threshold value)		
Materials	**Location**	**Approximate Quantity**	**Notes**
		None found	

Part 1 completed by	*R.J.M. van Uffelen*	**Date**	05-10-2017
Signature		**On behalf of**	Sea2Cradle

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PART 2 – Operationally Generated Wastes
Materials Listed in Table C
Inventory made up 15/10/2019

Code C 31	Waste Oil (Sludge)			
Location	Frame No.	Capacity m^3	Approximate Quantity	Notes
Sludgetank 22 C	31-34	16.6	Empty & Cleaned	

Code C 32	Bilge and/or waste water generated by the after-treatment systems fitted on machineries			
Location	Frame No.	Capacity m^3	Approximate Quantity	Notes
Dirtywater tank 27C	17-31	110	Empty & Cleaned	

Code C 33	Oily Liquid Tank Residues			
Location	Frame No.	Capacity m^3	Approximate Quantity)	Notes
n.a.				

Code C 34	Ballast water			
Location	Frame No.	Capacity (TONS)	Approximate Quantity	Notes
Tank 3 PS	82-103	128.7	Empty	
Tank 4 SB	80.5-103	134.7	Empty	
Tank13 PS	52-73	177.5	Empty	
Tank 14 SB	52-73	173.2	Empty	
Tank 17 PS	31-52	173.4	Empty	
Tank 18 SB	31-52	173.4	Empty	
Tank 25 PS	5-31	177.0	Empty	
Tank 26 SB	5-31	181.1	Empty	
Tank 35 PS	0-5	75.8	Empty	

Tank 36 SB	0-5	75.8		

Code C 35	Raw Sewage			
Location	Frame No	Capacity m^3	Approximate Quantity	Notes
Sewage plant		3.0	Empty	

Code C 36	Treated Sewage			
Location	Frame No.	Capacity m^3	Approximate Quantity	Notes
n.a.				

Code C 37	Non-Oily Liquid Cargo Residue			
Location	Frame no.	Capacity m^3	Approximate Quantity	Notes
n.a.				

Code C 39	Dry Cargo Residues		
Location		Approximate Quantity	Notes
n.a.			

Code C40	Medical Waste/Infectious Waste		
Location		Approximate Quantity	Notes
n.a. (Note: Medical locker emptied)			

Code C41	Incinerator Ash		
Location		Approximate Quantity	Notes
n.a.			

Code C42	Garbage

Location	Approximate Quantity	Notes
n.a.		

Code C43	Fuel Tank Residues		
Location *This refers to unpumpables/ullages*	**Frame No.**	**Approximate Quantity**	**Notes**
n.a. Except for fueltanks nos. 16 & 19, all fuel tanks emptied & cleaned.			
Tank nos. 16 & 19 low sulphur gasoil only. No residues			

Code C44	Oily Solid Cargo Tank Residues		
Location	**Frame No.**	**Approximate Quantity**	**Notes**
n.a.			

Code C45	Oily or Chemical Contaminated Rags		
Location		**Approximate Quantity**	**Notes**
Non.			

Code C53	Dry Tank Residues		
Location	**Frame No.**	**Approximate Quantity**	**Notes**
n.a.			

Code C54	Cargo Residues		
Location	**Frame no.**	**Approximate Quantity**	**Notes**
n.a.			

Part 2 completed by	*P.Bijkerk*	**Date**	*2019/10/15*
Signature		**On behalf of**	*Van Oord Ship Management b.v.*

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PART 3 (A) Stores and Spares
Materials Listed in Table C
Inventory made up 15/10/2019

Code C 1	Kerosene	
Location	Approximate Quantity	Notes
n.a.		

Code C 2	White Spirit	
Location	Approximate Quantity	Notes
n.a.		

Code C 3	Lubricating Oils (In machinery and storage tanks)		
The following list is not exhaustive, please Delete/Append or amend as appropriate			
Machinery Description	Location	Approximate Quantity including reservoirs	Notes
Lifeboat Davit Motors P&S	1 PS & 1 SB.	2 * 5 ltrs.	
Bunker Hoist P&S	n.a.		
Emergency Generator (Cylinders & Bearings)	Forward winchroom	35 ltrs.	
Gangway Winch Motors P&S	SB forward main deck	2 ltrs.	
Stores Cranes P&S	Crane powerpack in ER PS	250 ltrs.	
Main Engines	2 Nos. ER aft	2 * 500 ltrs.	
ME Turbo Charger 01	Main engine	6 ltrs.	
ME Turbo Charger 02	Main engine	6 ltrs.	
ME Turbo Charger 03	n.a.		
ME Turbo Charger 04	n.a.		
Diesel Generator 01	ER aft	85 ltrs.	Deutz
Diesel Generator 02	ER aft	85 ltrs.	Deutz

Diesel Generator 03	ER aft	85 ltrs.	Deutz
Diesel Generator 04	ER forward	440 ltrs.	Caterpillar
Turbine Generator	n.a		
Emergency Diesel Generator	Winchroom forward	35 ltrs.	Deutz
HFO Purifier 01	n.a.		
HFO Purifier 02	n.a.		
HFO Purifier 03	n.a.		
DO Purifier	ER aft	5 ltrs.	
LO Purifier 01	ER aft	5 ltrs.	
LO Purifier 02	ER aft	5 ltrs.	
Main Air Compressor 01	ER aft	7 ltrs	
Main Air Compressor 02	ER aft	7 ltrs.	
Topping up Compressor 01	n.a.		
Topping up Compressor 02	n.a.		
Emergency Air Compressor	n.a.		
AC Compressor 01	ER forward	15 ltrs.	
AC Compressor 02	Engine control room	1.5 ltrs.	
Domestics Compressor 01 (provisions)	ER forward	4 ltrs.	
Domestics Compressor 02 (provisions(	ER forward	4 ltrs.	
Workingair compressor	ER forward	25 ltrs.	
CO2 Compressor 02	n.a.		
Azimuth thrusters 3 nos. 2 Installed, 1 spare unit on deck	2 nos.ER aft/ 1 nos.main deck	3 * 1000ltrs.	
ER Crane	n.a.		
Windlasses and Mooring Winches (All) • 6 Anchorwinches	3 *Winchroom aft, 3 * winchroom forward	4 * 400ltrs. + 2 * 600ltrs.	

Windlass	1 nos.Forecasttle	7 ltrs.	
Mooringwich	2 nos. PS/SB aft	200 ltrs. In combined powerpack	

Lub. Oil Tank Designation	Frame No.	Capacity m^3	Approximate Quantity	Notes
Tank 28	17-22	17.0	1700 ltrs.	Gadinia 40
Tank 106	Non Integrated	1.0	680 ltrs.	Gadinia 40
Tank 63	67-73	10.0	Empty	
Tank 108-0	Non Integrated	1.5	1176 ltrs.	Gadinia 30
Tank 62	63-67	10.0	1170 ltrs.	Omala S2 G68
Tank 109	Non Integrated	1.0	470 ltrs.	Omala 68
Tank 108-5	Non Integrated	250 Ltrs.	85 ltrs.	Corena
Tank 108-1	Non Integrated	250 Ltrs.	220 ltrs	Corena
Tank 108-2	Non Integrated	250 Ltrs.	35 ltrs.	Rimula
Tank 108-3	Non Integrated	250 Ltrs.	140 ltrs.	Rimula
Tank 61	67-70	5.0	4240 ltrs	Tellus
Tank 108-6	Non Integrated	250 Ltrs.	37 ltrs	Omala
Tank 120	77-90	2.1	Empty	

Lub. Oil Stores (Drums)	Location	Approximate Quantity	Notes
Shell Corena, drum	Chemical storage PS aft	60 ltrs.	
Shell Omala 220, drum	Chemical storage PS aft	80 ltrs.	
Mobil Rarus 827, drum	Chemical storage PS aft	20 ltrs.	

Omala 150, drum	Chemical storage PS aft	80 ltrs	
Tellus S2, drum	Chemical storage PS aft	54ltrs.	
Omala 220 s4 G, drum	Chemical storage PS aft	80 ltrs.	
Nautilus, drum	Chemical storage PS aft	24 ltrs.	
Cutting oil, drum	Chemical storage PS aft	5 ltrs.	

Code C 4	Hydraulic Oils (In machinery and storage tanks)		
The following list is not exhaustive, please Delete/Append or amend as appropriate			
Machinery Description	**Location**	**Approximate Quantity including reservoirs**	**Notes**
Lifeboats P&S Hydraulic Starters	n.a		
Emergency Generator Hydraulic Starter	Winchroom forward	5 ltrs.	
Stores Crane P&S	ER forward		Powerpack
ER Watertight door control	2 nos. ER room	1 * 20 ltrs	Powerpacks, local
Other Watertight Door control	1 nos. forward winchroom	1 * 20 ltrs.	Local powerpack
Hydraulic Mooring Systems Fwd	n.a.		
Hydraulic Mooring Systems Aft	Poopdeck.	200 ltrs.	
Steering Gear System	n.a. (azimuth thrusters)		
Remote Valve Operating System	n.a.		
Controllable Pitch Propeller	n.a.		
Cargo Cranes	Main deck PS aft	Main system 1800ltrs.	
		Aux. System 1600 ltrs.	

Hyd. Oil Tank Designation	Tank frame	Capacity m^3	Approximate Quantity	Notes
Main central hydraulics system tank	n.a. (non integrated. Location ER aft PS)	7.0	4000 ltrs.	

Main hydraulics total system contents(incl system tank)		Located main hydr.room	10,000 ltrs.	

Hyd. Oil Stores (Drums)	Location	Approximate Quantity	Notes
n.a.			

Code C 5	Anti-seize Compounds	
Location	Approximate Quantity)	Notes
Chemical locker ER	5 kg	

Code C 6	Fuel Additives	
Location	Approximate Quantity)	Notes
Unitor Mar 71. Location chemical locker deck PS	200 ltrs.	

Code C 7	Engine Coolant Additives & Water Treatments		
Machinery Description *Give tonnage of treated engine coolant*	**Location**	**Approximate Quantity including reservoirs**	**Notes**
Main Engines, 2 nos.	Nalcool 2000 + anti freeze	2 * 700 ltrs.	
Generators, 3 nos.	Nalcool 2000 + anti freeze	3 * 200 ltrs.	
Emergency Generator	n.a. Air cooled		
Central Cooling System	Nalcool 2000 + anti freeze	500 ltrs.	

Engine Additives/Treatment Chemical Stores	Location	Approximate Quantity including reservoirs	Notes
n.a.			

Code C 8	Antifreeze Fluids	
Machinery Location *Give tonnage of treated water in use (eg Em.Gen.)*	**Approximate Quantity**	**Notes**
Total volume added in sytems. Mono glycol	2500 ltrs	

Antifreeze Stores	Location	Approximate Quantity	Notes
n.a.			

Code C 9	Boiler and Feedwater Treatment and Test Reagents		
Machinery Description *Give tonnage of treated water in use*	**Location**	**Approximate Quantity including reservoirs**	**Notes**
.Main Boiler(s)	n.a.		
Economiser	n.a.		
Auxiliary Boiler	n.a.		

Boiler & Feed Water Chemicals & Test Reagents	Location	Approximate Quantity	Notes
n.a.			

Code C10	De-ioniser Regeneration Chemicals		
Location		**Approximate Quantity**	**Notes**
n.a.			

Code C11	Evaporator Dosing Descaling Acids		
Location		**Approximate Quantity**	**Notes**
n.a.			

Code C12	Paint Stabilisers/Rust Stabilisers		
Location		**Approximate Quantity**	**Notes**
Paint store sb aft			

Code C 13	Solvents/Thinners		
Location		**Approximate Quantity**	**Notes**
Paint store sb aft		100 ltrs.	

Code C 14	Paints		
Location		**Approximate Quantity**	**Notes**
Paint store sb aft		300 ltrs.	

Code C 15	Chemical Refrigerants	
Location	**Approximate Quantity**	**Notes**
n.a. Offloaded to shore		

Code C 16	Battery Electrolyte	
Location *Only if in bulk (stores), not in batteries (see B3 and C46)*	**Approximate Quantity**	**Notes**
n.a.		

Code C 17	Alcohol, Methylated Spirit	
Location	**Approximate Quantity**	**Notes**
n.a.		

Code C 18	Acetylene	
Location	**Approximate Quantity**	**Notes**
n.a. Offloaded to shore		

Code C 19	Propane	
Location	**Approximate Quantity**	**Notes**
n.a.		

Code C20	Butane	
Location	**Approximate Quantity**	**Notes**
n.a.		

Code C 21	Oxygen	
Location *Include ER use and medical*	**Approximate Quantity**	**Notes**
Medical O2, hospital	5 ltrs.	

Code C 22	CO_2	
Location *Bulk & in cylinders, but not fire extinguishers (see C48)*	**Approximate Quantity**	**Notes**
n.a.		

Code C 23	Perfluorocarbons (PFCs)	
Location	**Approximate Quantity**	**Notes**
n.a.		

Code C 24	Methane	
Location	**Approximate Quantity**	**Notes**
n.a.		

Code C 25	Hydrofluorocarbon (HFCs) (R134a/401a/404a etc)		
Type	**Location**	**Approximate Quantity**	**Notes**
417A	Hydraulic room PS	22 kgs	
407C	Hydraulic room ps	22 kgs	

Code C 27	Nitrous Oxide (N_20)	
Location	**Approximate Quantity**	**Notes**
n.a.		

Code C 28	Sulphur Hexafluoride (SF_6)	
Location	**Approximate Quantity**	**Notes**
n.a		

Code C 29	Bunkers : HFO/IFO/MDO			
Tank Description	**Frame No.**	**Capacity m³**	**Approximate Quantity**	**Notes**

TANK MGO-Nr 11	76-98-C	76.0	empty	cleaned
TANK MGO-Nr 15	52-73-P	85.0	Empty	cleaned
TANK MGO-Nr 16	52-73-S	86.0	62.1	
TANK MGO-Nr 19	34-52-P	55.6	27.1	
TANK MGO-Nr 20	31-52-S	64.8	Empty	cleaned
TANK MGO-Nr 21	34-52-C	63.5	Empty	cleaned
TANK MGO-Nr 23	31-52-P	9.2	0.1	
IFO TANKS	n.a.			
MGO TANK 33	05-11-P	18.5	Empty	
MGO TANK 34	05-11-S	18.5	Empty	
MGO TANK 37	43-46-S	5.1	Empty	
MGO TANK 104	110-114-S	6.3	Empty	
OTHER TANKS				
Em gen. daytank 103	Em.gen.room	0.25	238ltrs.	

Code C 30	**Grease**	
Location *Only grease in stores - not in use*	**Approximate Quantity**	**Notes**
Bell Ray open wire grease	60 kgs.	
Alvania EP	84 kgs.	
Rhodinia	21 kgs.	
Malleus	36 kgs.	

Code C 38	**Fuel Gas**

Location *This refers to gas used as fuel (LNG) not gasoline/petrol*	Approximate Quantity	Notes
n.a.		

Code C46	Batteries (All types incl. Lead acid batteries)		
Type and Use ***Only batteries in store (spares or waste) otherwise in B1 and B3. Not consumer batteries –AA AAA etc- see Part 3B***	Location	Approximate Quantity	Notes
4 pcs. Dry, no acid filling	Bowthrusterroom	4	

Code C47	Pesticides/insecticide sprays	
Location	Approximate Quantity	Notes
n.a.		

Code C48	Extinguishers, including portable CO_2 units		
Location	Type	Approximate Quantity	Notes
Details as per Fire Plan	Water	n.a.	
	Dry Powder	530kgs.	
	Foam	14 kgs.	
	CO_2	140 kgs.	
	Other FM 200	846 lbs	

Code C49	Chemical Cleaner (incl electrical equipment cleaner, carbon remover)		
Type *(product brand)*	Location	Approximate Quantity	Notes
n.a.			

Code C50	Detergent/bleacher

Location	Approximate Quantity	Notes
n.a.		

Code C51	Miscellaneous Medicines	
Location *(product brand) (Attach separate list of medical stores)*	**Approximate Quantity**	**Notes**
n.a. Removed to shore		

Code C52	Firefighting Clothing and Personal Protective Equipment		
Item *Include BA sets & spares, EEBD*	**Location**	**Approximate Quantity**	**Notes**
BA sets	Safety locker accommodation, PS aft deck	2 sets + spare cylinders	
EEBD	Accomodation & tech spaces	14 pcs.	

Code C55	Spare Parts which contain materials listed in Table A or Table B	
Location	**Approximate Quantity**	**Notes**
n.a.		

Part 3A completed by	*P.Bijkerk*	**Date**	*2017-10-21*
Signature		**On behalf of**	*Van Oord Ship Management b.v.*

WHILST EVERY CARE HAS BEEN TAKEN TO ENSURE THAT THE INFORMATION PROVIDED IN PART 3 OF THIS INVENTORY IS ACCURATE, UP-TO-DATE AND COMPLETE, NEITHER THE SHIPOWNER NOR ANY SHIPOWNER'S REPRESENTATIVE ACCEPTS ANY LIABILITY FOR ANY ERRORS OR OMISSIONS IN THE INVENTORY OR FOR ANY ACTS OR OMISSIONS OF ANY PERSON IN THE HANDLING, REMOVAL OR DISPOSAL OF THESE SUBSTANCES, WHETHER DONE IN RELIANCE ON THE INFORMATION IN THIS INVENTORY OR OTHERWISE.

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PART 3 (B) - Materials Listed in Table D
Regular Consumable (Domestic) Goods Potentially Containing Hazardous Materials
Inventory made uo 15/10/2019

Equipment	Description/Location	Quantity	Notes
D1 : Refrigeration Units	Conventional refrigerators (*can be grouped by location and refrigerant type)*	Approx 22 pcs.	
	Water fountains	n.a.	
	Deep freezer	1 nos. Winchroom forward	
	Ice machine	n.a.	
	Drinks chillers	n.a.	
	Food chillers	1 nos. Messroom	
D1 : Radar & Nav Equipment Displays	CRT Display	n.a.	
	Flat screen	Approx. 25 pcs.	
D1 : Computers (PCs)		n.a.	
D1 : Printers		Approx. 4 pcs.	
D1 : Scanners		n.a.	
D1 : UPS Units		Approx 10 pcs.	
D1 : Television Sets	CRT Displays	n.a.	
	Flat screen	Approx 20 pcs.	
D1 : Radio Sets		Full GMDSS radio station	
D1 : Video Cameras		n.a.	
D1 : Video Recorders		n.a.	
D1 : Telephones		Approx 10 pcs.	
D1 : Consumer batteries		Approx 50 pcs.	

D2 : Filament Bulbs *(estimated)*		200 pcs.	
D2 : Lamps		50 pcs.	
D2 : Fluorescent Lamps *(estimated)*		200 pcs.	
D3 :			

Part 3B completed by	*Peter Bijkerk*	**Date**	*2019-10-15*
Signature		**On behalf of**	*Van Oord Ship Management b.v.*

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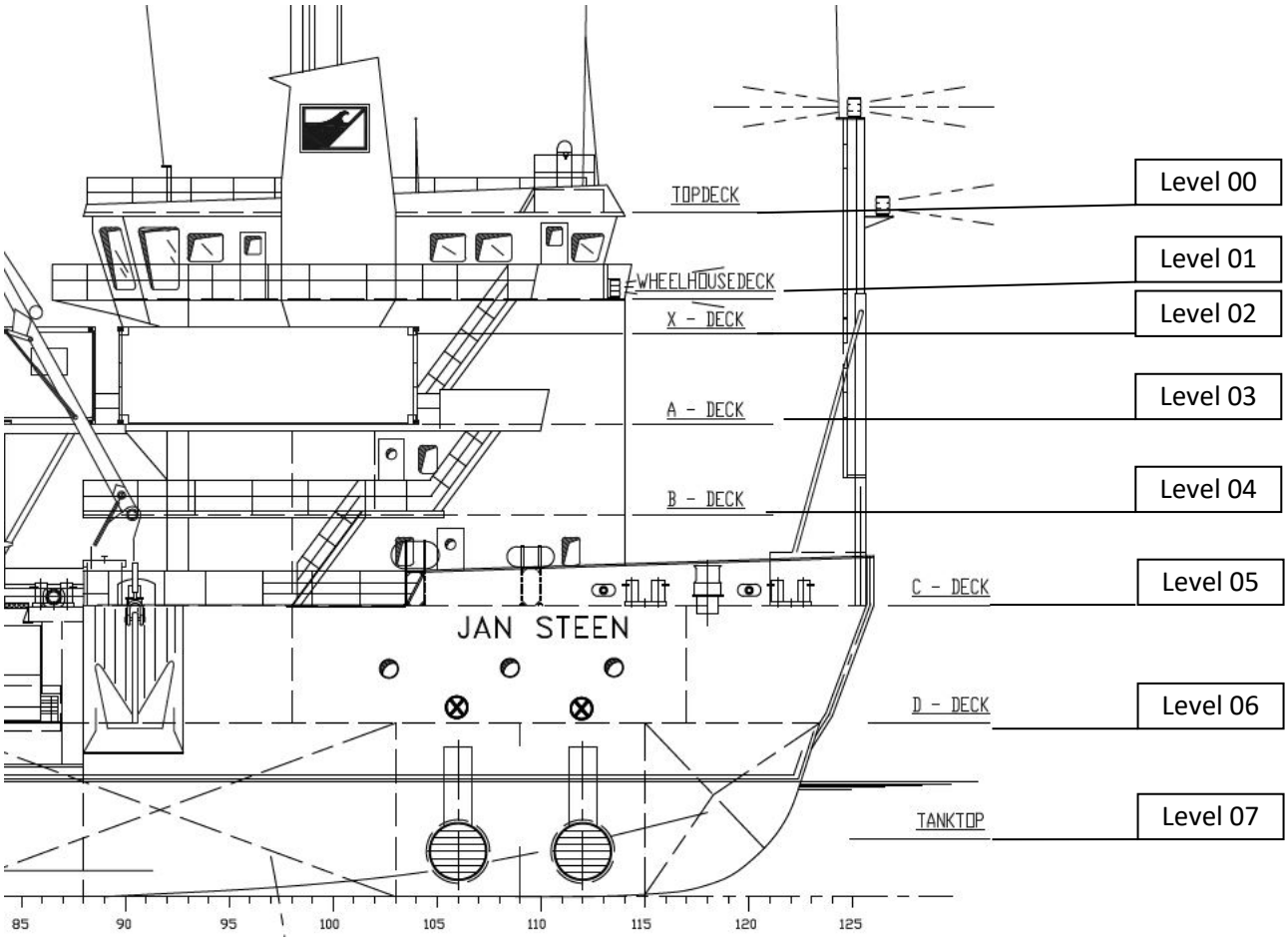
Zone and Level Definitions


TOPDECK
WHEELHOUSEDECK
X - DECK
A - DECK
B - DECK
C - DECK
D - DECK
TANKTOP
JAN STEEN
85
90
95
100
105
110
115
120
125
Level 00
Level 01
Level 02
Level 03
Level 04
Level 05
Level 06
Level 07

Refer to the profile plan for the location of the listed zones and levels

Level	Zone : Accommodation
A00	Top Deck
A01	Wheelhouse Deck
A02	X – Deck
A03/A04	Accommodation Decks A-B
A05	Main(Upper) Deck Accommodation
A06	Accommodation under Main deck including Emerg. Generator and boatswain store

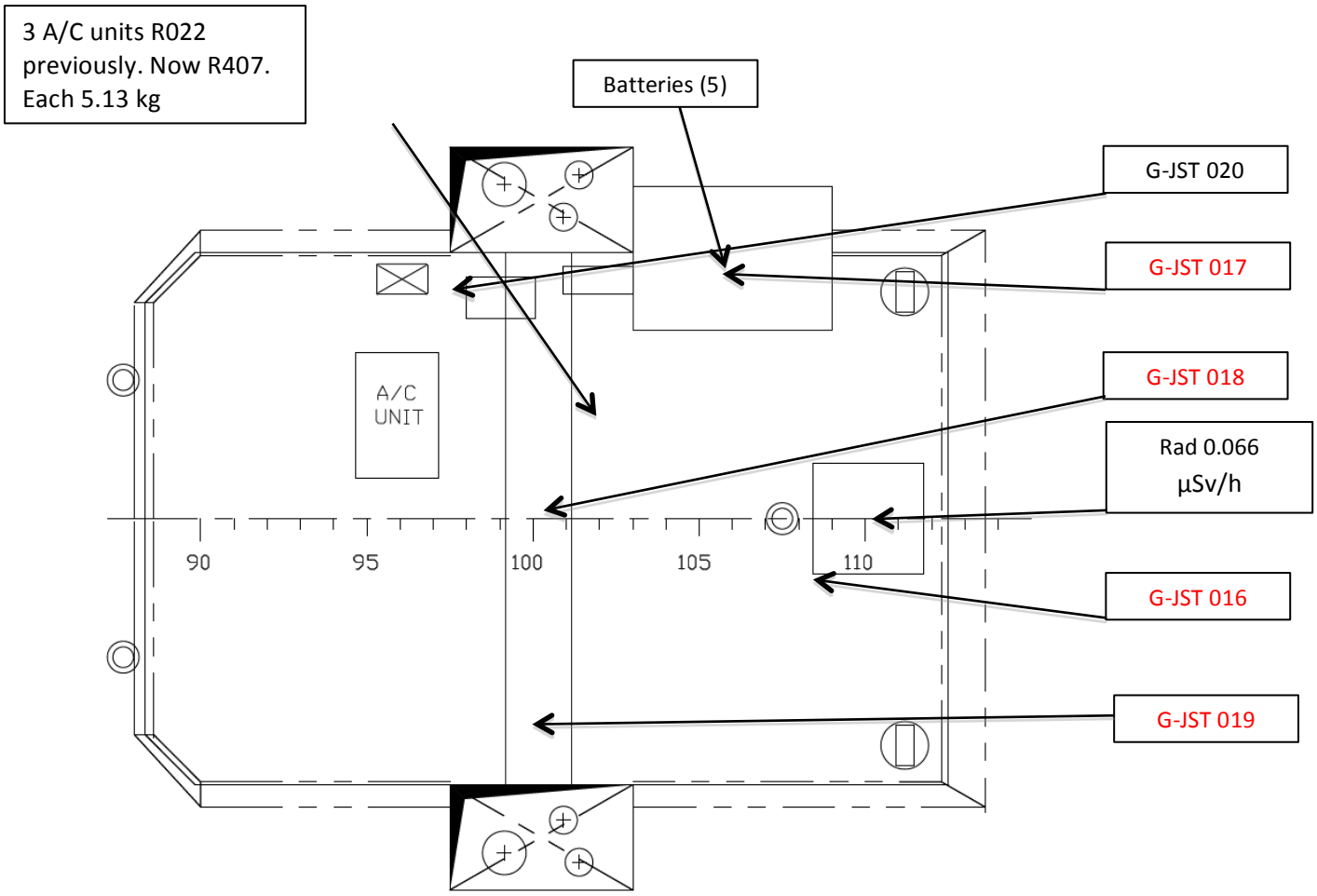
Level	Zone : Engine Room
E01 – E05	Funnel Trunking from Bridge level to Main (Upper) Deck
E06	See A06
E7	Tanktop with ECR, Workshop, Winchroom, Bow thrusters, Airco units

Level	Zone : Decks Fore, Aft & Main
DF06	Boatswain store (See also A06)
DA06	Open deck with store rooms on Port and Starboard sides.
	Sling- (2*), Paint- , Chemical- (2*) and Client store

Level	Zone : Cargo Spaces & Tanks
	No cargo spaces. Only oil and water ballast tanks.

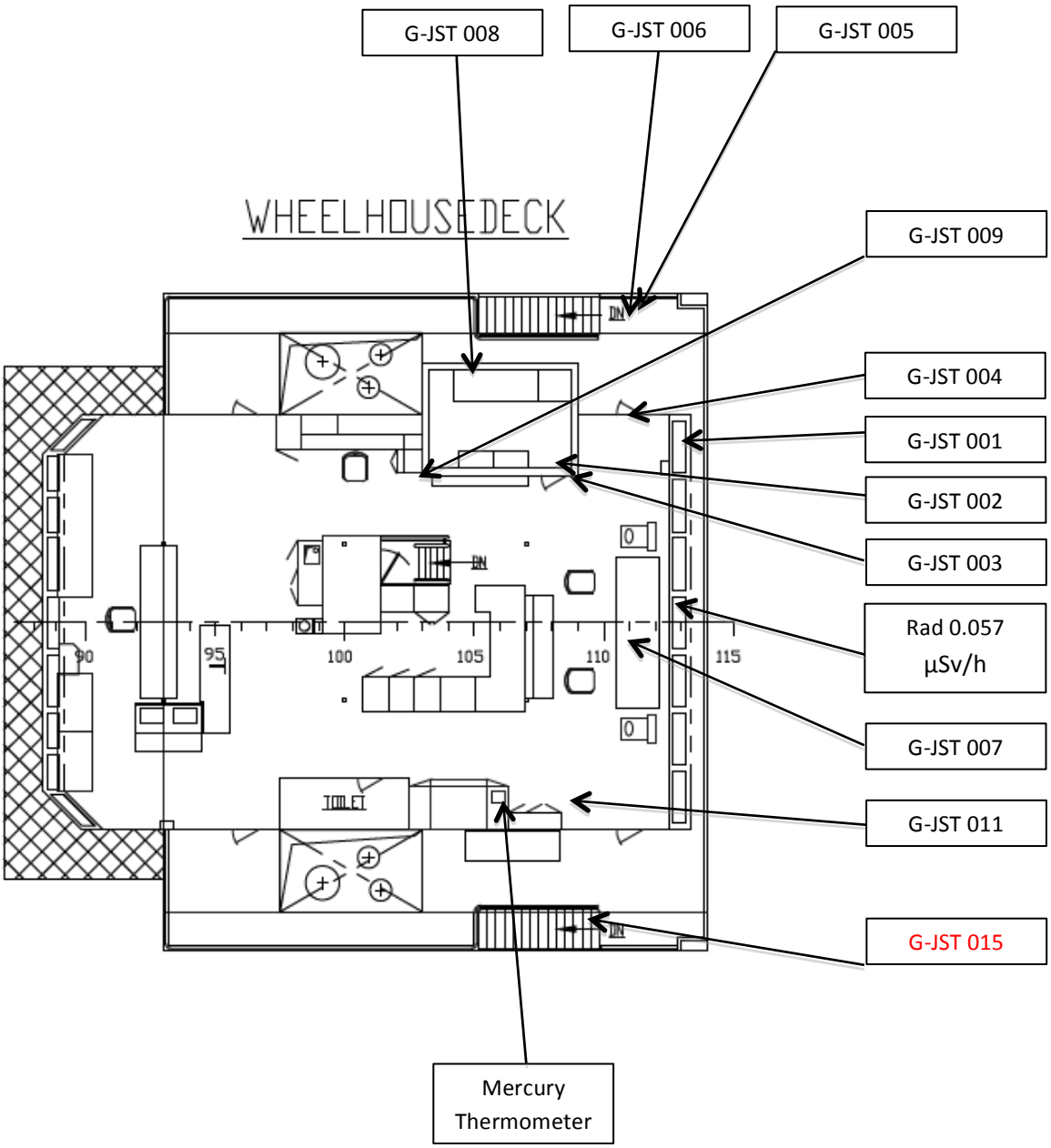
“Cargo Spaces” are defined as any space designed for the carriage of cargo, be it liquid (gas, oil, chemical or similar) or dry in nature.
“Tanks” are defined as the operational shipboard tanks used for the carriage of fuel oils, fuels, lubricants, ballast water, permanent ballast or potable water etc., and includes void and buoyancy spaces.

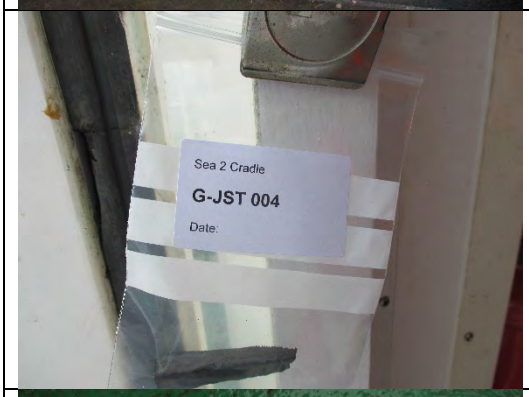
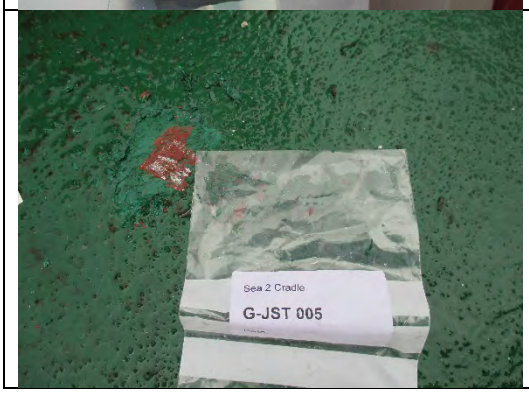
Location Diagrams of Hazardous Materials on Board

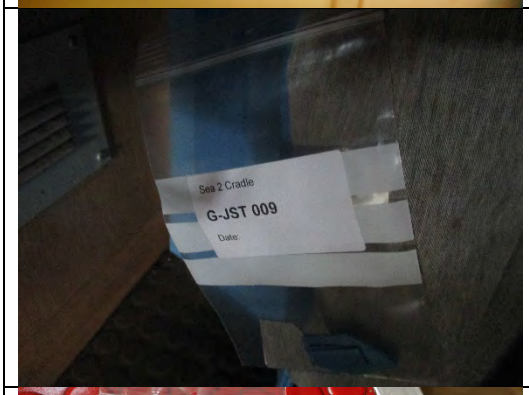

3 A/C units R022 previously. Now R407. Each 5.13 kg
Batteries (5)
G-JST 020
G-JST 017
G-JST 018
Rad 0.066 µSv/h
G-JST 016
G-JST 019
A/C UNIT
90
95
100
105
110

No picture. White paint on the top deck	Sample : G JST 016 Location : Bridge Top deck Description: White paint Tested for : Pb, Cd, Cr Result : Pb: 33200 mg/kg Cd: Negative Cr: 1820 mg/kg
	Sample : G JST 017 Location : Bridge Top deck railing Description: Orange paint Tested for : Pb, Cd, Cr Result : Pb: 61100 mg/kg Cd: Negative Cr: 9720 mg/kg
	Sample : G JST 018 Location : Bridge Top deck mast Description: Yellow paint Tested for : Pb, Cd, Cr Result : Pb: 11500 mg/kg Cd: Negative Cr: 17500 mg/kg
	Sample : G JST 019 Location : Bridge Top deck Description: Green paint Tested for : Pb, Cd, Cr Result : Pb: 33600 mg/kg Cd: Negative Cr: 553 mg/kg
	Sample : G JST 020 Location : Bridge Top deck Description: Cable wipe Tested for : PCB Result : Negative

	Location: Bridge Top deck Description: Batteries Containing: Lead
	Location: Bridge Top deck Description: Batteries Containing: Lead


G-JST 008
G-JST 006
G-JST 005
WHEELHOUSEDECK
G-JST 009
G-JST 004
G-JST 001
G-JST 002
G-JST 003
Rad 0.057
µSv/h
G-JST 007
G-JST 011
G-JST 015
Mercury
Thermometer
90
95
100
105
110
115
TOILET

	Sample : G JST 001 Location : 01 Bridge navigation deck Description: Window seal Tested for : PCB Result : Negative
	Sample : G JST 002 Location : 01 Bridge navigation deck Description: Floor rubber/plastic Tested for : PCB Result : Negative
	Sample : G JST 003 Location : 01 Bridge navigation deck Description: Bulkhead plastic Tested for : PCB Result : Negative
	Sample : G JST 004 Location : 01 Bridge navigation deck Description: Door seal rubber Tested for : PCB Result : Negative
	Sample : G JST 005 Location : 01 Bridge navigation deck Description: Green paint Tested for : Pb, Cd, Cr Result : Pb: 225 mg/kg Cd: Negative Cr: 22.1 mg/kg

	Sample : G JST 006 Location : 01 Bridge navigation deck Description: White paint Tested for : Pb, Cd, Cr Result : Pb: 34.2 mg/kg Cd: Negative Cr: 15.7 mg/kg
	Sample : G JST 007 Location : 01 Bridge navigation deck Description: Cables front console Tested for : PCB Result : Negative
	Sample : G JST 008 Location : 01 Bridge navigation deck Description: Gold coloured window shield Tested for : PFOS Result : Negative
	Sample : G JST 009 Location : 01 Bridge navigation deck Description: Curtain multi layered Tested for : PFOS Result : Negative
	Sample : G JST 011 Location : 01 Bridge navigation deck Description: Floor rubber/plastic red Tested for : PCB Result : Negative

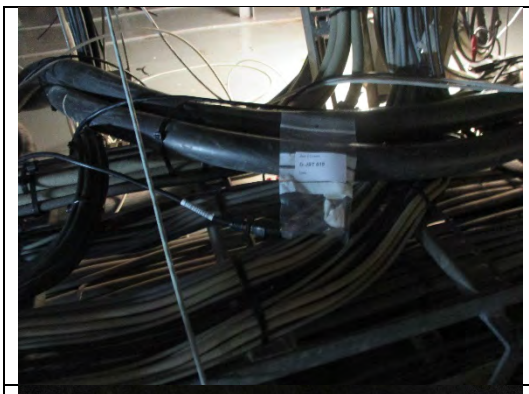
	Sample : G JST 015 Location : 01 Bridge navigation deck Description: Black paint stairs Tested for : Pb, Cd, cr Result : Pb: 4540 Cd: Negative Cr: 1820

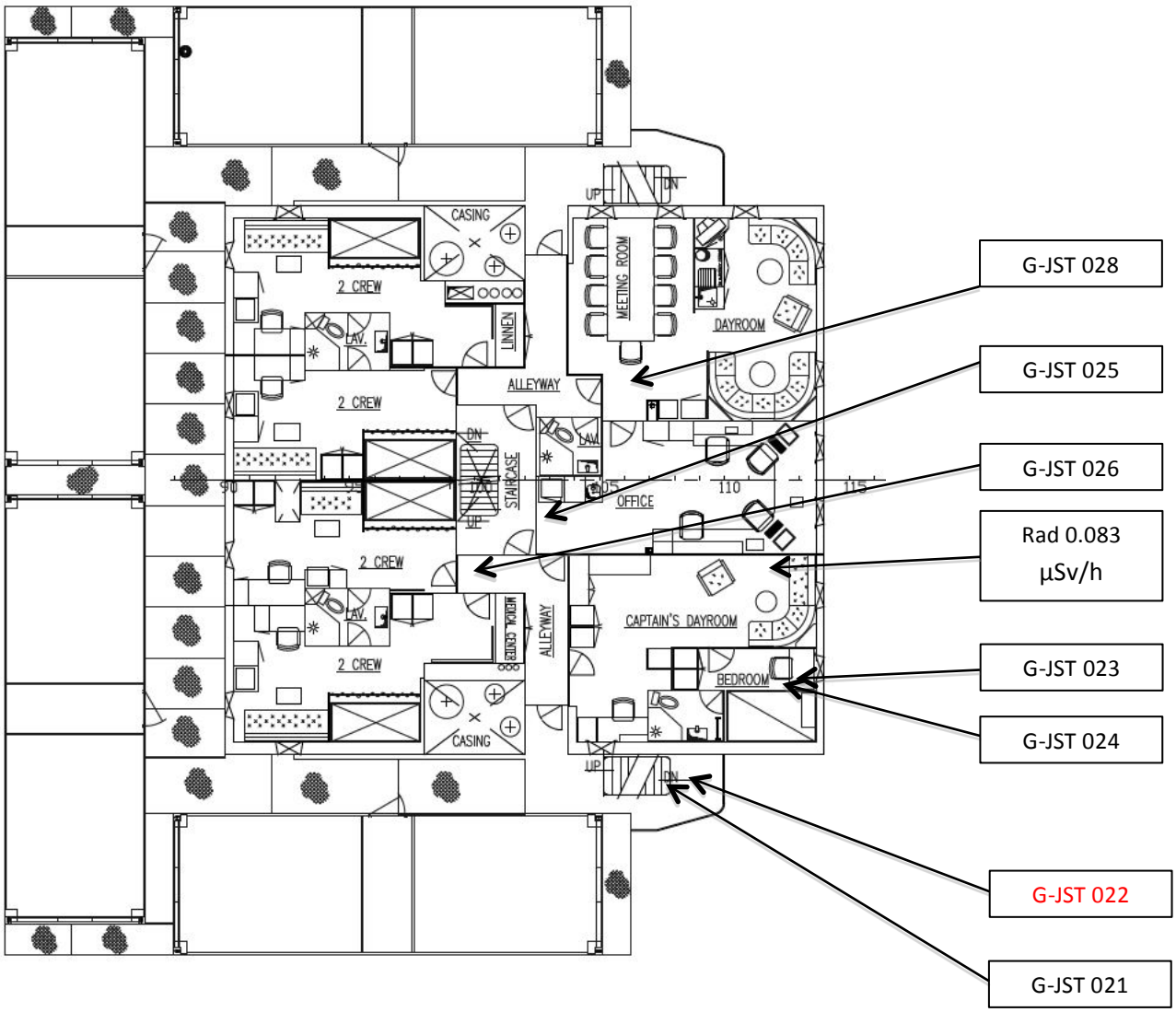
02 X Deck

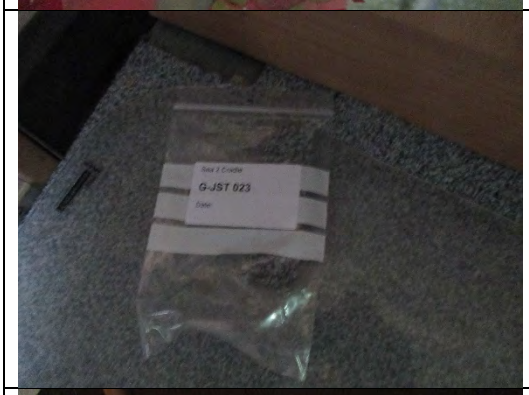
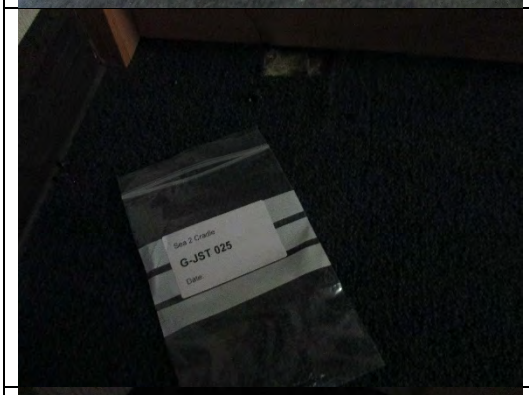
This deck is basically a double bottom floor under the bridge deck.

Contains a lot of cables. Accessible via small hatches on the bridge deck.

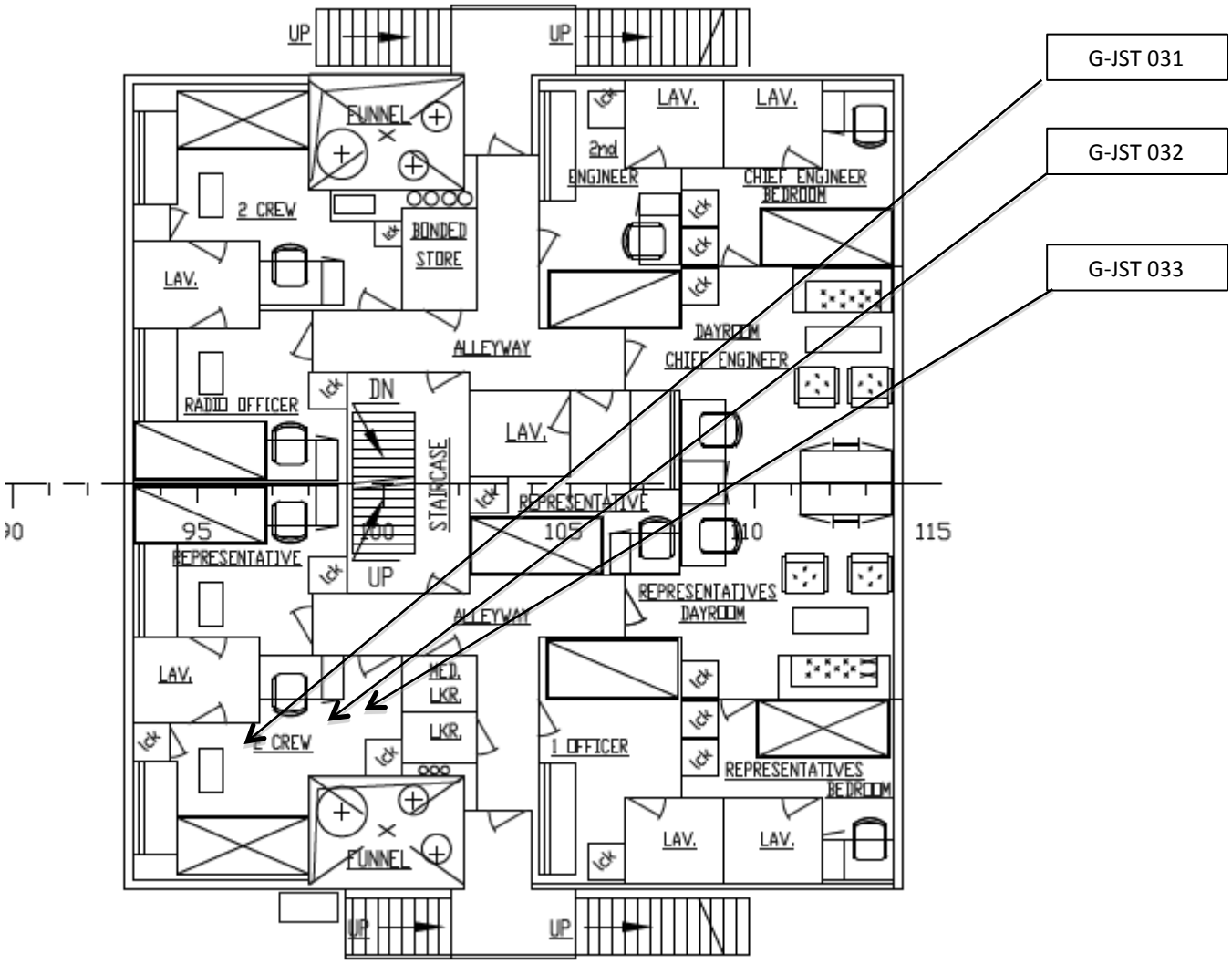
G-JST 010	Sampled near central entrance
G-JST 012	Sampled near central entrance
Rad 0.048 µSv/h	Measured near SB entrance

	Sample : G JST 010 Location : 02 X Deck Description: Cables Tested for : PCB Result : Negative
	Sample : G JST 012 Location : 02 X deck Description: Grey/red paint Tested for : Pb, Cd, Cr Result : Pb: 1680 mg/kg Cd: 3.99 Cr: 61.7

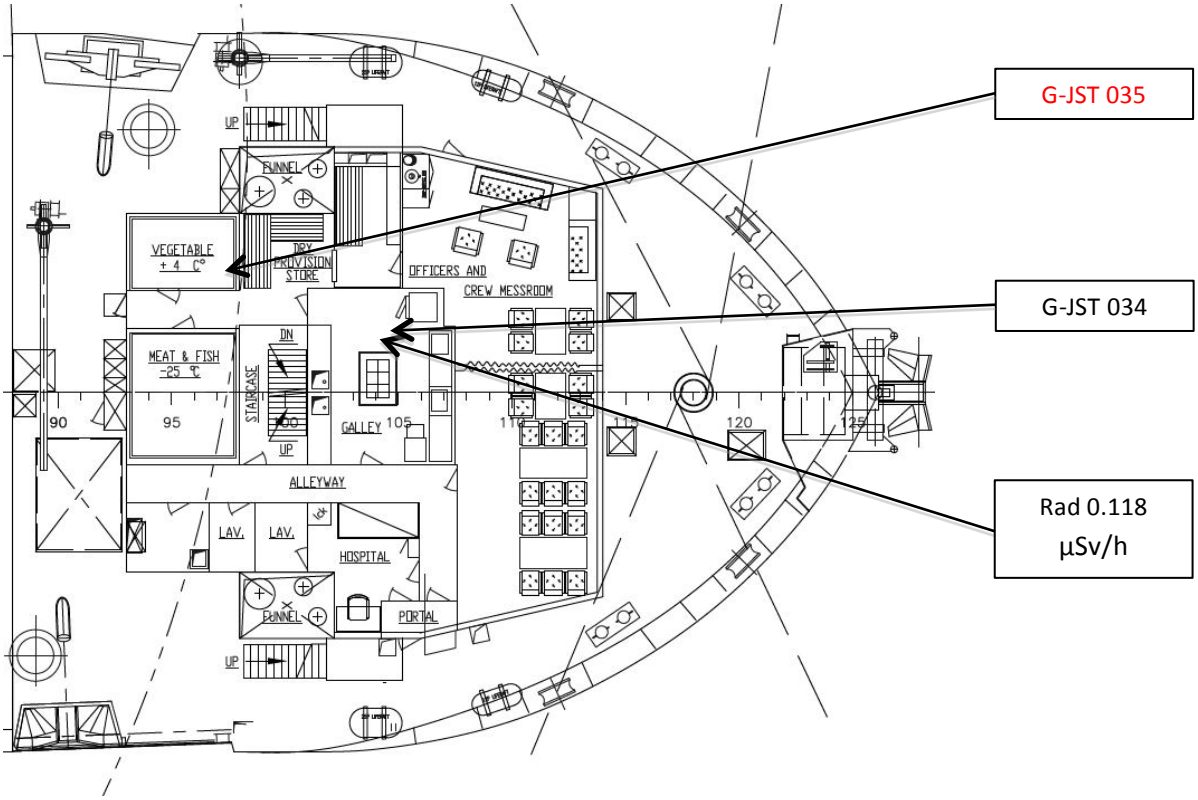

CASING
2 CREW
LAV.
LINNEN
ALLEYWAY
MEETING ROOM
DAYROOM
UP
DN
STAIRCASE
OFFICE
90
95
105
110
115
MEDICAL CENTRE
CAPTAIN'S DAYROOM
BEDROOM
G-JST 028
G-JST 025
G-JST 026
Rad 0.083
µSv/h
G-JST 023
G-JST 024
G-JST 022
G-JST 021

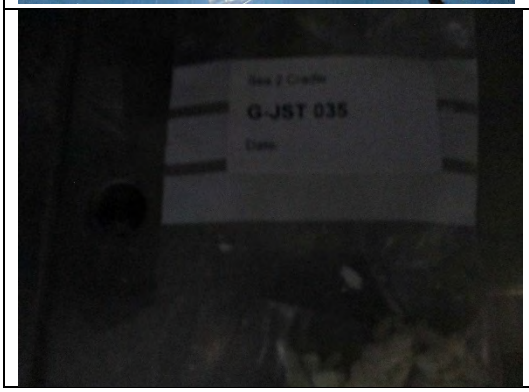
	Sample : G JST 021 Location : 03 A Deck Description: Stair covering Tested for : PCB Result : Negative
	Sample : G JST 022 Location : 03 A deck Description: Red paint handrail staircase Tested for : Pb, Cd, Cr Result : Pb: 15300 Cd: Negative Cr: 3090
	Sample : G JST 023 Location : 03 A deck Capt. dayroom Description: Carpet Tested for : PFOS, HBCDD Result : Negative
	Sample : G JST 025 Location : 03 A Deck Office Description: Carpet Tested for : PFOS, HBCDD Result : Negative
	Sample : G JST 026 Location : 03 A Deck alley Description: Floorcovering Tested for : PCB Result : Negative

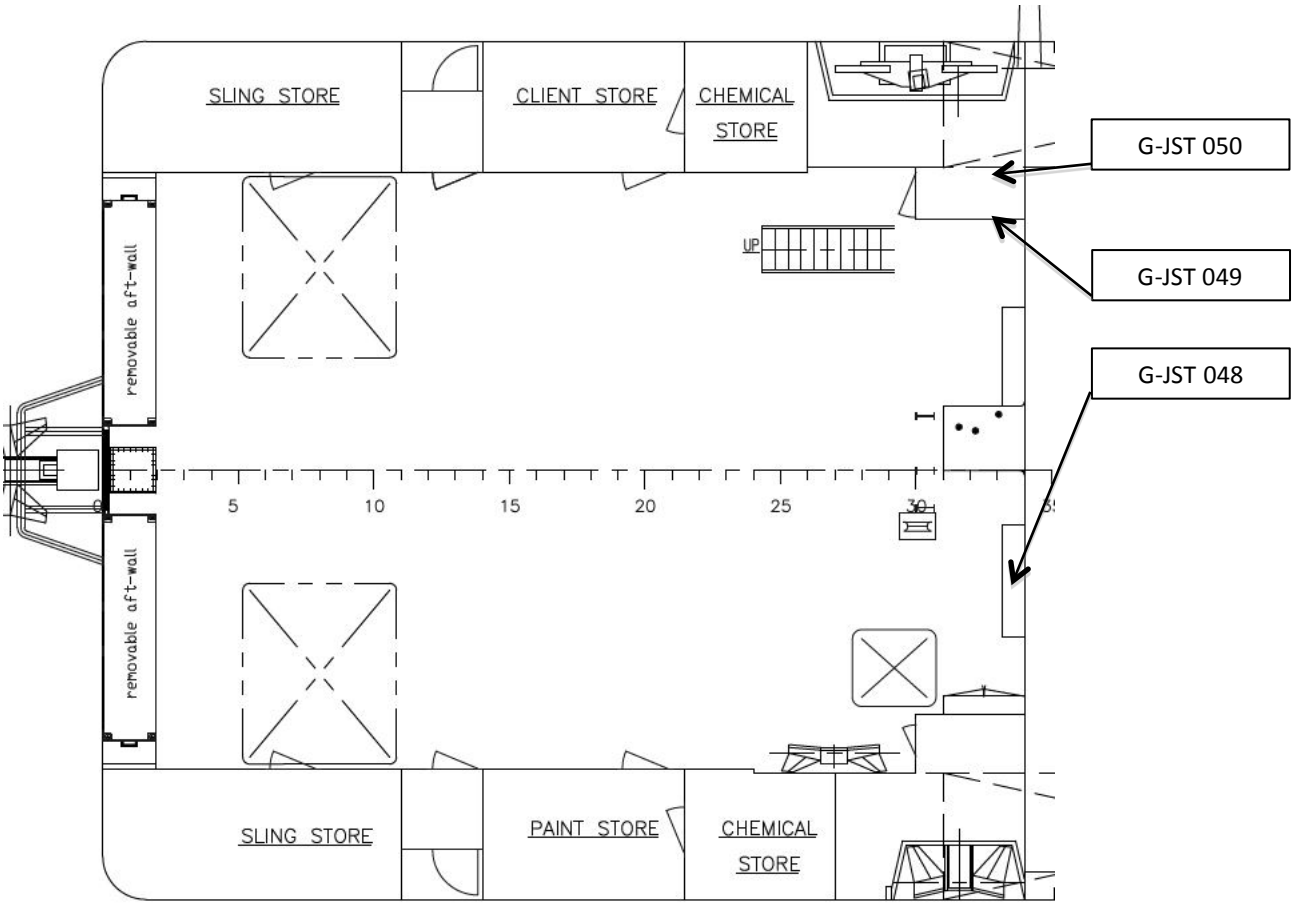
	Sample : G JST 028 Location : 03 A deck meeting room Description: Floorcovering plastic Tested for : PCB Result : Negative

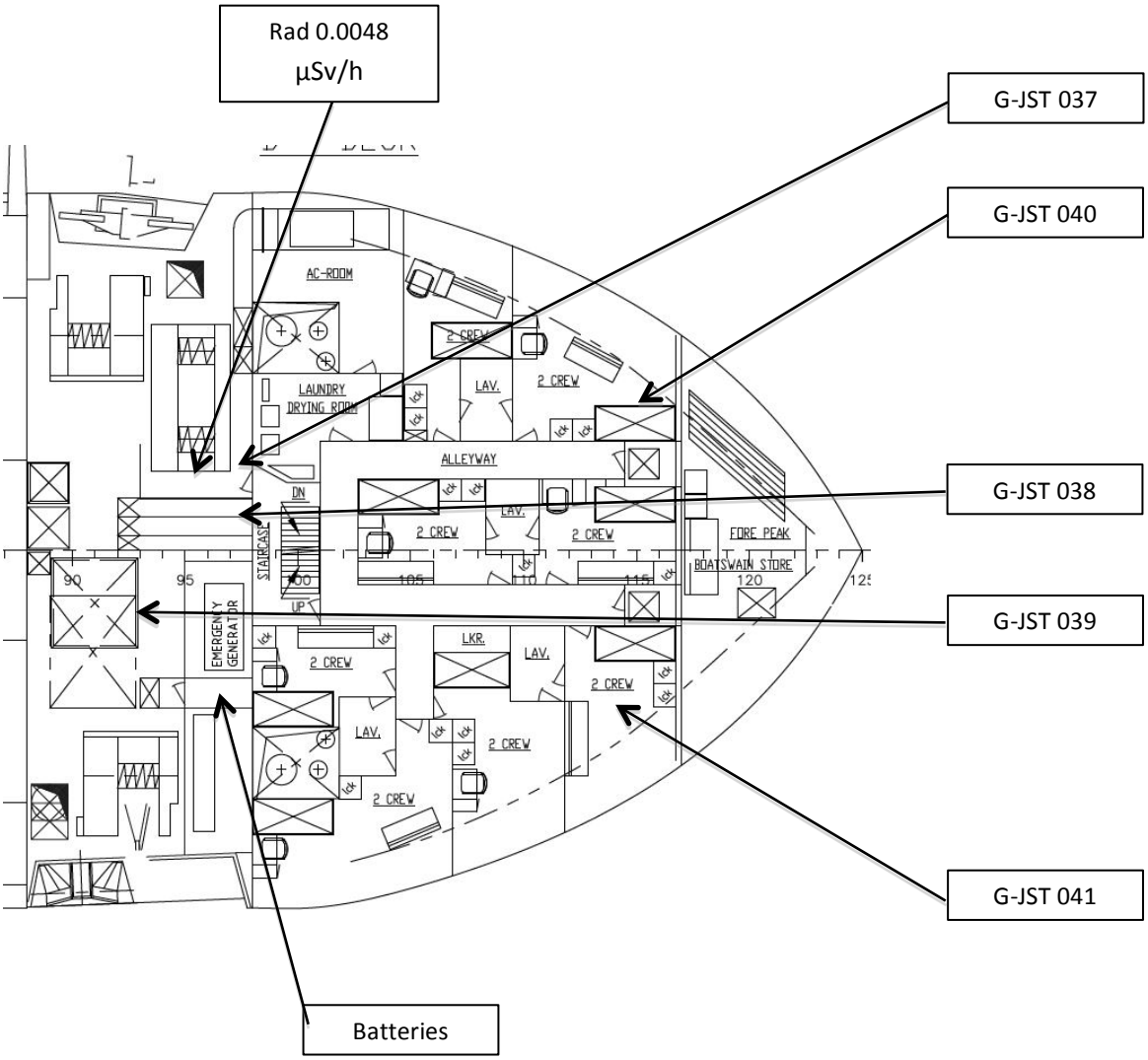

G-JST 031
G-JST 032
G-JST 033
UP
UP
FUNNEL
LAV.
LAV.
2nd ENGINEER
CHIEF ENGINEER BEDROOM
2 CREW
BONDED STORE
LAV.
ALLEYWAY
DAYROOM CHIEF ENGINEER
RADIO OFFICER
DN
STAIRCASE
LAV.
REPRESENTATIVE
95
100
105
110
115
REPRESENTATIVE
UP
REPRESENTATIVES DAYROOM
ALLEYWAY
LAV.
MED. LKR.
LKR.
2 CREW
1 OFFICER
REPRESENTATIVES BEDROOM
FUNNEL
LAV.
LAV.
UP
UP

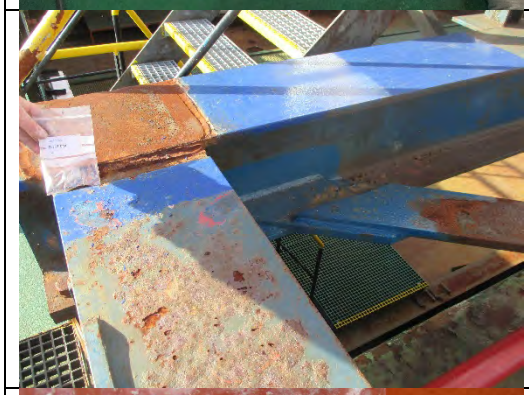
	Sample : G JST 031 Location : 04 B Deck Description: Window seal rubber Tested for : PCB Result : Negative
	Sample : G JST 032 Location : 04 B Deck Description: Wall panel plastic Tested for : PCB Result : Negative
	Sample : G JST 033 Location : 04 B Deck Description: Carpet Green Tested for : PFOS, HBCDD Result : Negative


G-JST 035
G-JST 034
Rad 0.118
µSv/h
UP
FUNNEL
VEGETABLE
+ 4 C°
DRY
PROVISION
STORE
OFFICERS AND
CREW MESSROOM
MEAT & FISH
-25 °C
DN
STAIRCASE
UP
GALLEY
ALLEYWAY
LAV.
LAV.
HOSPITAL
FUNNEL
PORTAL
UP
90
95
100
105
112
118
120
125

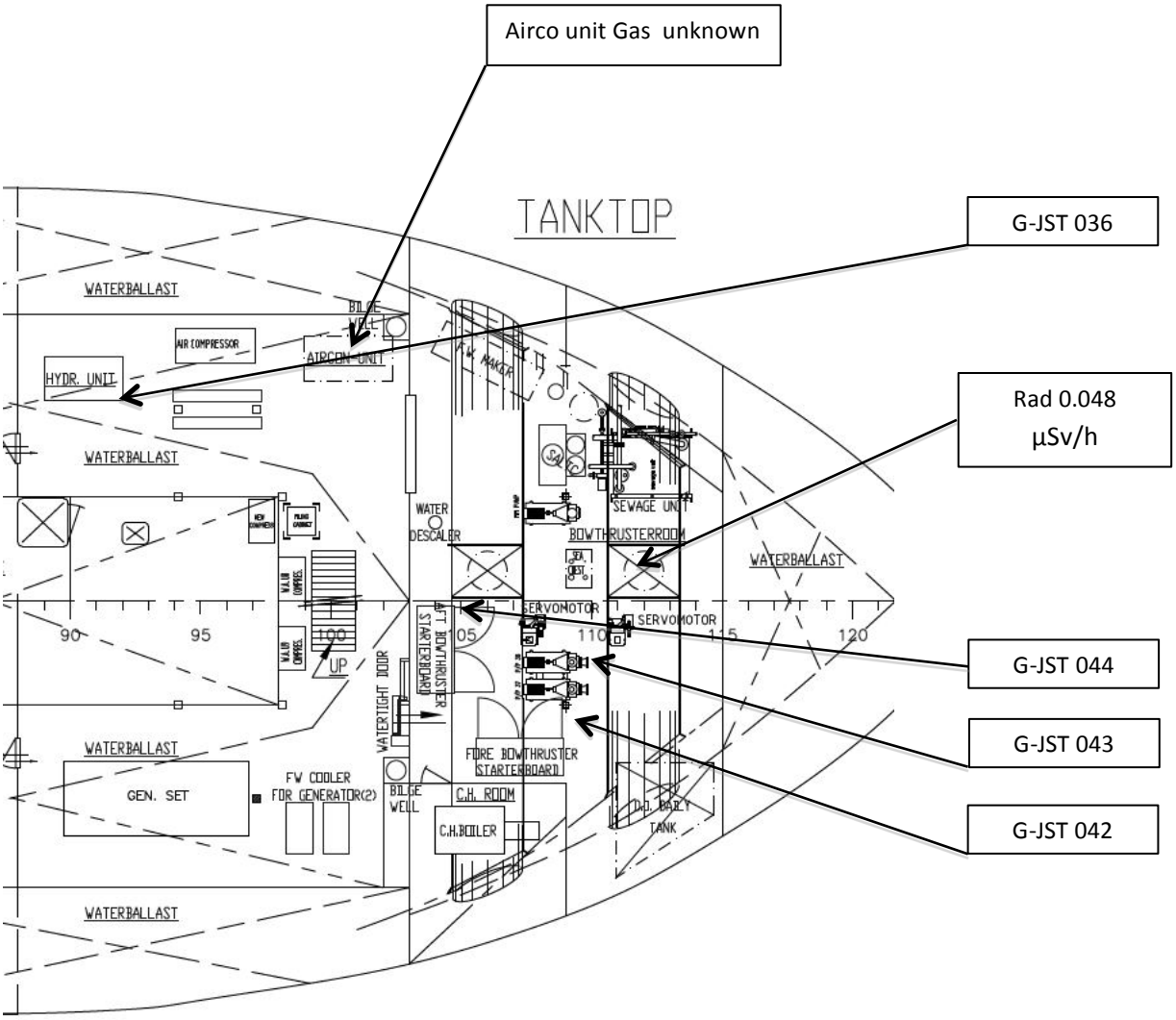
	Sample : G JST 034 Location : 05 C deck Galley Description: Floor Blue paint Tested for : Pb, Cd, Cr Result : Negative
	Sample : G JST 035 Location : 05 C Deck Cold store Description: Insulation Tested for : ODS Result : R11: 12800

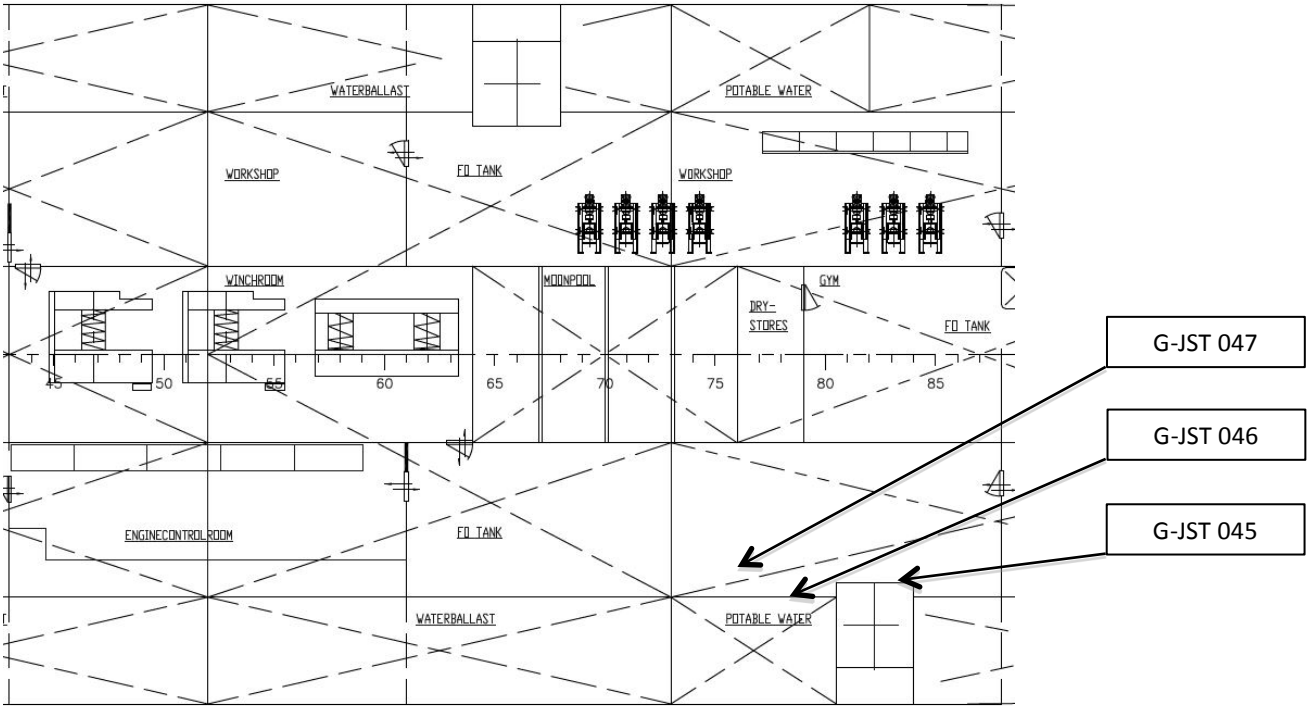

SLING STORE
CLIENT STORE
CHEMICAL STORE
G-JST 050
G-JST 049
G-JST 048
UP
removable aft-wall
removable aft-wall
5
10
15
20
25
30
SLING STORE
PAINT STORE
CHEMICAL STORE

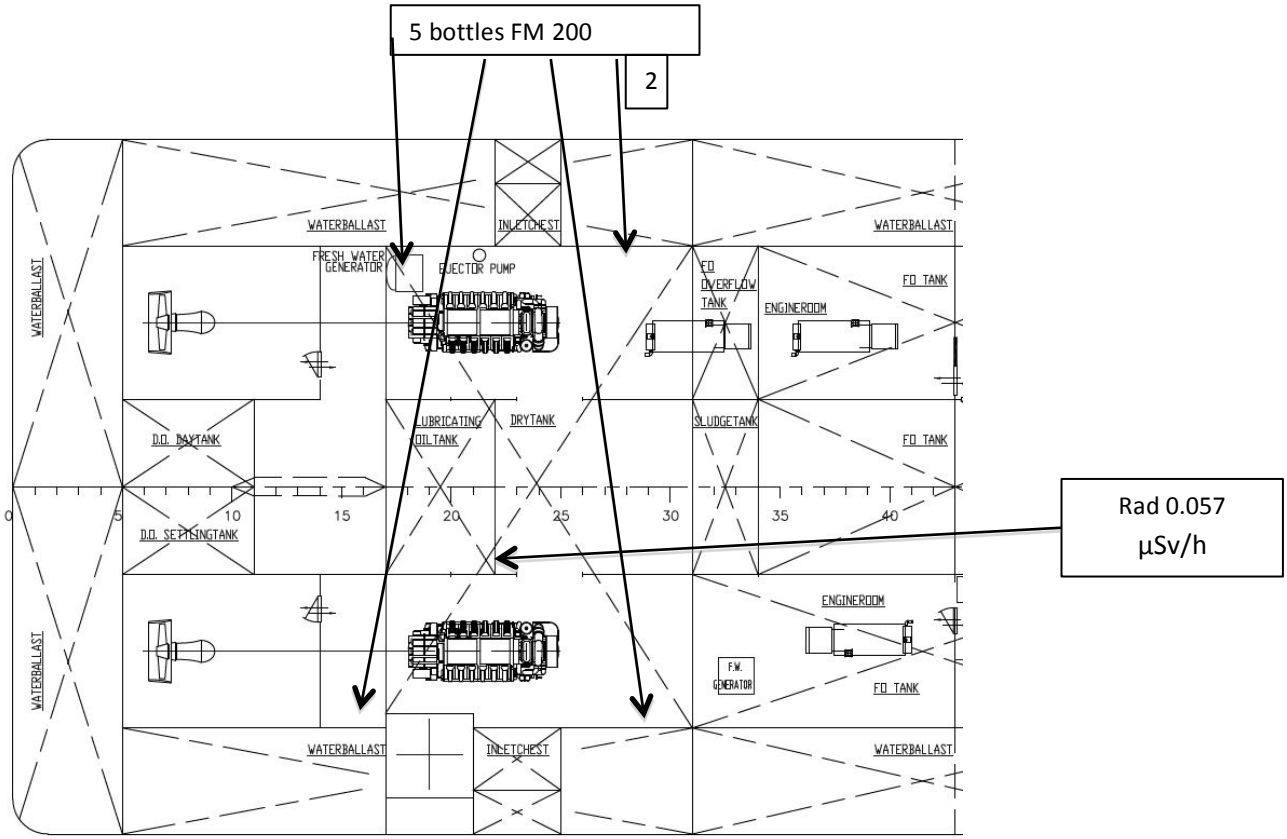

Rad 0.0048
µSv/h
G-JST 037
G-JST 040
G-JST 038
G-JST 039
G-JST 041
Batteries
AC-ROOM
LAUNDRY
DRYING ROOM
LAV.
2 CREW
ALLEYWAY
DN
STAIRCASE
UP
FORE PEAK
BOATSWAIN STORE
EMERGENCY
GENERATOR
LKR.
90
95
100
105
110
115
120

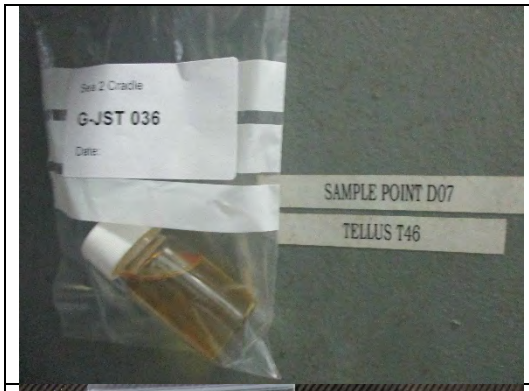
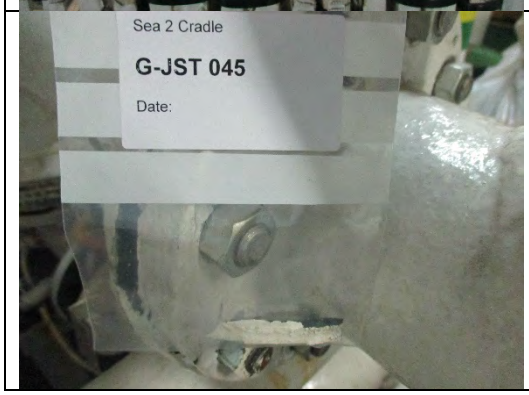
	Sample : G JST 037 Location : 06 D Deck Winchroom Description: Cable Tested for : PCB Result : Negative
	Sample : G JST 038 Location : 06 D Deck Winchroom Description: Lagging Foam/plastic Tested for : PFOS Result : Negative
	Sample : G JST 039 Location : 06 D Deck Winchroom Description: Rubber hatchcover seal Tested for : PCB Result : Negative
	Sample : G JST 048 Location : 06 D deck Description: Blue paint Tested for : Pb, Cd, Cr Result : Negative
	Sample : G JST 049 Location : 06 D Deck cranehouse Description: Orange/grey paint Tested for : Pb, Cd, Cr Result : Pb: 10400 mg/kg Cd: Negative Cr: 20300 mg/kg

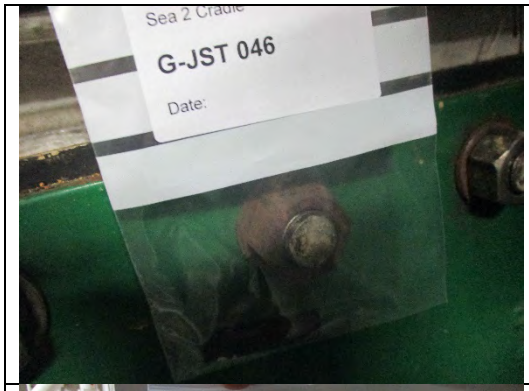
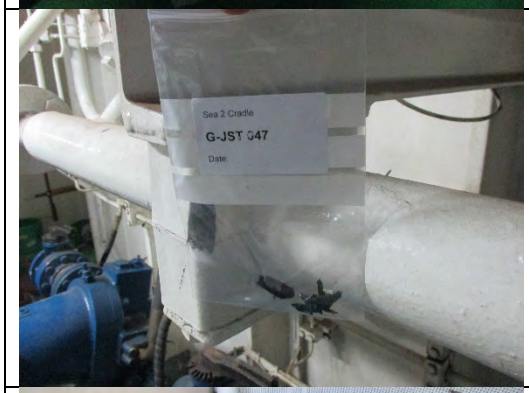
	Sample : G JST 050 Location : 06 D Deck Description: Plastic grating on deck Tested for : PFOS Result : Negative
	Equipment: Batteries Location: 06Emergency Generator Haz Mat: Lead Acid
	Equipment: Life rafts Location: 06 Weatherdeck (Temp. stow) Haz Mat: See list of life raft contents (Fireworks, gasses, medicines and more)
	Equipment: Life rafts Location: 06 Weatherdeck (Temp. stow) Haz Mat: See list of life raft contents (Fireworks, gasses, medicines and more)


Airco unit Gas unknown
G-JST 036
Rad 0.048
µSv/h
G-JST 044
G-JST 043
G-JST 042
TANKTOP
WATERBALLAST
AIR COMPRESSOR
HYDR. UNIT
AIRCON UNIT
BILGE WELL
WATER DESCALER
SEWAGE UNIT
BOWTHRUSTERROOM
SERVOMOTOR
SERVOMOTOR
90
95
100
105
110
115
120
UP
WATERTIGHT DOOR
AFT BOWTHRUSTER STARTERBOARD
FORE BOWTHRUSTER STARTERBOARD
GEN. SET
FW COOLER FOR GENERATOR(2)
C.H. ROOM
C.H.BOILER
TANK


WATERBALLAST
POTABLE WATER
WORKSHOP
FO TANK
WORKSHOP
WINCHROOM
MOONPOOL
GYM
DRY-
STORES
FO TANK
45
50
55
60
65
70
75
80
85
ENGINECONTROLROOM
FO TANK
WATERBALLAST
POTABLE WATER
G-JST 047
G-JST 046
G-JST 045


5 bottles FM 200
2
WATERBALLAST
INLETCHEST
WATERBALLAST
FRESH WATER GENERATOR
EJECTOR PUMP
FO OVERFLOW TANK
ENGINEROOM
FO TANK
WATERBALLAST
D.O. DAYTANK
LUBRICATING OILTANK
DRYTANK
SLUDGETANK
FO TANK
0
5
10
15
20
25
30
35
40
D.O. SETTLINGTANK
Rad 0.057 µSv/h
ENGINEROOM
WATERBALLAST
F.W. GENERATOR
FO TANK
WATERBALLAST
INLETCHEST
WATERBALLAST

	Sample : G JST 036 Location : 07 ER Description: Hydraulic oil Tested for : PCB Result : Negative
	Sample : G JST 042 Location : 07 ER Bow thruster room Description: Rubber floor matting Tested for : PCB Result : Negative
	Sample : G JST 043 Location : 07 ER Bow thruster room Description: Lagging/insulation Tested for : PCB, PFOS Result : Negative
	Sample : G JST 044 Location : 07 ER Bow thruster room Description: Cabling bow thruster Tested for : PCB Result : Negative
	Sample : G JST 045 Location : 07 ER Seawater cooler Description: Rubber sealing Tested for : PCB Result : Negative

	Sample : G JST 046 Location : 07 ER tank (nr.3) Description: Rubber seal Tested for : PCB Result : Negative
	Sample : G JST 047 Location : 07 ER Hydraulic space Description: Pipe hanger Tested for : PCB Result : Negative
	Equipment: Lead batteries Location: 07 ER PS. Not connected Hazmat: Lead acid
	Equipment: Gas bottles (5) Location: 07 ER Different locations Haz Mat: FM 200 Gas

Visual/Sampling Check Plan (VSCP)

Visual/Sampling Check Plan

Project 155.17 Jan Steen

This check plan shows the Equipment and Components of which inspection will be made and for which consideration for sampling will be given.
All samples taken are listed on the attached Lists.
All sampling locations, visually checked and found items, photographs, descriptions and analysis results are shown in the attached IHM Appendices.

The following documents have been consulted:

400 - International Air Pollution Prevention Certificate
440 - International Anti-fouling System Certificate
0604-D01.001 - General Arrangement
0604-D01.002 - Fire Control and Life Saving Plan
0604-D01.004 - Capacity Plan
0604-D01.025 - Ships Colours
0604-D02.030 - Trim and Stability Information Booklet
0604-D07.297 - Plan of Insulation - New Building 1986
0604-D07.297A - Plan of Insulation - Conversion 2000
0604-D14.640 - Arrangement Airconditioning and Ventilation
0604-M10.076.010 - Maintenance Report Paint System 2015
SMD-GEN-EL-0604-Equipment leaflet-JAN STEEN (internal)

Zone	Equipment	Component/Part	Material	Document analysis	Check procedure	Check Result / Notes (C or NC)
Accommodation	stairwell	Handrails	PCB		Visual / Sample	N.A. Paint checked for Pb, Cr, Cd
		Vinyl flooring	PCB		Sample	C
	Deck	Vinyl Flooring /Tiling	PCB		Sample	C
		matting	PCB		Sample	C
		Carpeting	PFOS HBCDD		Sample	C
	Gauges	Gauges	Mercury		Visual	C (2 thermometers)
	windows	Rubber seals	PCB		Sample	C
	electrical	Batteries	Heavy Metals		Visual	C
		Cables	PCB		Sample	C
		penetrations	PCB /Lead		Sample	C PCB
		Transformer oil	PCB		visual	N.A.
		Fluorescent light ballast	PCB		Visual	N.A.
	Bulkhead	Panelling/plastic coating	PCB		Visual	N.C.
	Internal Doors	Door seals	PCB		Sample	C
	Fire protection	Smoke Detectors	Radioactive	Inspection list	Visual	Mixed optical/ionising

Zone	Equipment	Component/Part	Material	Document analysis	Check procedure	Check Result / Notes (C or NC)
	External doors	W/T seals	PCB		Sample	C
	Furniture	Covering materials	PFOS		Sample	C
	A/C units	Refrigerant	ODS		Visual	C
	Cold Stores	Blown insulation	ODS		Sample	C
	Steel bulkheads & deckheads	Coatings (paint)	Lead		Sample	C
	Trunking	gaskets	PCB		Visual	N.C.
	Pipe work	Penetrations	Lead/PCB		Sample	N.A.
		Joints/gaskets	PCB		Sample	N.C.
		Valve gaskets	PC**B**		Sample	N.C.
		Lagging	ODS		Visual	C (Same as in ER)
		Pipe hangers	PCB		Sample	N.A.

Zone	Equipment	Component/Part	Material	Document analysis	Check procedure	Check Result / Notes (C or NC)
Engine Spaces	Steel bulkheads & deckheads	Coatings (paint	Heavy Metals		Sample	C
	Pipe work	Penetrations	Lead/PCB		Sample	N.C.
		Joints gaskets	PCB		Sample	N.C
		Valve gaskets	PCB		Sample	N.C.
		Lagging	ODS		Sample	C
		Pipe hangers	PCB		Sample	C
	Fire Protection	Smoke detectors	Radioactive		Visual	Pending list
	External/internal openings	W/T seals	PCB		Sample	C
	stairs	Handrails/treads	PCB		Sample	N.A.
	Deck	Vinyl flooring / Tiling	PCB		Sample	N.A.
		matting	PCB		Sample	C
	Gauges	Gauges	Mercury		Visual	C
	windows	Rubber seals	PCB		Sample	N.A.
	Electrical	Cables	PCB		Sample	C
		penetrations	PCB/Lead		Sample	C
		Transformer oil	PCB		Visual	All transformers dry type

Zone	Equipment	Component/Part	Material	Document analysis	Check procedure	Check Result / Notes (C or NC)
		Lighting ballast	PCB		Visual	N.A.
		Phase correction capacitors	PCB		Visual	N.A.
		2Ph motor capacitors	PCB		Visual	N.A.
		Batteries	Heavy Metals		Visual	C
	Bulkhead	Panelling/plastic coating	PCB		Sample	N.A.
		lagging	ODS		Sample	N.A.
	Air trunking	jointing	PCB		Sample	N.C.
	Refrigeration & A/C units	Refrigerant	ODS		Visual	R22 / R407
	Hydraulic systems	Hydraulic oil	PCB		Sample	C
	E.G. Economiser	Lagging	ODS PCB		Sample	N.A.
	Incinerator	Lagging	ODS PCB		Sample	N.A.
	Auxy Machinery	Casing gaskets	PCB		Sample	N.A.
	Auxy Machinery	Gland packing	PCB		Sample	N.C.
	Auxy Machinery	Shock mountings	PCB		Sample	N.A.

Zone	Equipment	Component/Part	Material	Document analysis	Check procedure	Check Result / Notes (C or NC)
Weather Decks and Deck Machinery	Coatings	Deck Paint	Heavy metals		Sample	C
		Bulkhead paint	Heavy metals		Sample	C
		Hull Paint	Heavy metals		Sample	N.C.
		Antifouling coatings	TBT	TBT cert	Visual	Removed by blasting
	Pipework	Insulation	PCB		Sample	N.A.
		Jointing	PCB		Sample	N.A.
	Cables	insulation	PCB		Sample	N.A.
		penetrations	PCB /Lead		Sample	N.A.
	Weatherdeck doors	W/T seals	PCB		Sample	C
	Pipe work	Penetrations	Lead/PCB		Sample	N.A.
		Joints gaskets	PCB		Sample	N.A.
		Valve gaskets	PCB		Sample	N.C.
		Lagging	ODS		Sample	N.A.
		Pipe hangers	PCB		Sample	N.A.
	Cranes	Hydraulic oil	PCB		Sample	N.A.
	Mooring	Hydraulic oil	PCB		Sample	N.A.

Zone	Equipment	Component/Part	Material	Document analysis	Check procedure	Check Result / Notes (C or NC)
Deck Stores and Structures	Coatings	Deck Paint	Heavy metals		Sample	C
		Bulkhead paint	Heavy metals		Sample	C
	Pipework	Insulation	PCB		Sample	N.A.
		Jointing	PCB		Sample	N.A.
		Hangers	PCB		Sample	N.A.
	Cables	insulation	PCB		Sample	N.A.
		penetrations	PCB /Lead		Sample	N.A.
	Trunking	Insulation	ODS		Sample	N.A.
		Jointing	PCB		Sample	N.A.

Asbestos documentation

Asbestos Survey TYPE A

(according to SC-540 and with reference to NSI Instruction)

MV Jan Steen

Moerdijk, The Netherlands

Project Number	**: PAM-40067/PAM-40863**
Location	**:** MV Jan Steen, IMO Number: 8505707, ID (EVA): 495370
Survey Coordinator	**:** Mrs. P. Opstal-Rakhan
Version	**:** 2.0
Client	**:** Van Oord Dredging and Marine Contractors bv
Contact	**:** Mr. C. Solleveld
Date	**:** April 2nd 2014

Certificate number: AO-067/04 registration number: 02-D020053.01c Hongkongstraat 5 – 3047 BR Rotterdam / +31 10 208 844 44

Foreword

Report on Asbestos Survey TYPE A

Survey Purpose

☒ For removal of asbestos containing materials exclusively mentioned in this Type A report.

☐ For subsequently execution of a Type B investigation for verification of a list of reasonably suspected materials containing asbestos in the preceding Type A research.

☐ To establish user integrity for the entire structure/vessel with an asbestos inspection report Type G.

☐ For the renovation/refit of an inspected structure/vessel as noted in the summary in a specified part of the structure/vessel.

☐ For renovation/refit of the entire structure/vessel.

☐ For recycling of the entire structure/vessel.

Extend of Survey:

☐ entire structure/vessel

☒ part of the structure/vessel

☐ unforeseen asbestos present

Inspection Type:

☒ asbestos inspection Type-A

- ☒ full (suitable for application of environment permit, real estate only)
- ☐ incomplete (not suitable for application of environment permit, real estate only)

☐ asbestos inspection Type-B

☐ asbestos inspection Type-G

Risk Management:

☒ risk assessment for the purpose or recycling or refurbishment (SMA-rt)

☒ risk assessment in use phase (NEN 2991:2005)

On behalf of Oesterbaai Engineers b.v.:

Mr. M. Stok

General Manager

Rotterdam, 02-04-2014

List of Parties

Client:

Name:	Van Oord Dredging and Marine Contractors bv
Address:	Schaardijk 211
Postal code and City:	3063 NH ROTTERDAM
Contact:	Mr. H. Stoelhorst
Telephone Number:	+31 (0)88 8260000

Project location:

Vessel:	MV Jan Steen
Address:	Graanweg 28, Moerdijk
IMO Number:	8505707
Flag State:	Netherlands

Contractor:

Name:	ingenieursbureau Oesterbaai b.v.
Address:	Hongkongstraat 5 - 3047 BR Rotterdam
Telephone Number:	+31 (0)10 – 208 84 44
Fax Number:	+31 (0)10 – 208 84 33
Project Number:	PAM-40067/PAM-40863
Survey Period:	04-02-14
Project Coordinator:	Mrs. P. Opstal-Rakhan
Asbestos Surveyors:	Mr. I.J.P. Johnson (SCA-code: 51E-220513-410444)
	Mr. M. van Leeuwen (SCA-code: 51E-280213-410437)
Version:	2.0

Laboratory work:

Company:	Fibrecount Environmental Control B.V.

Summary

This asbestos survey was carried out in accordance with the SC-540 guidelines:

1. consultation between Client and Manager
2. desk research and design of inspection plan
3. visual inspection
4. sampling and analysis results

Initial, consultations with the Manager were held as often as possible. Subsequently, desk research was carried out on location with blueprints and specifications for inspection provided by the Client. Research details are recorded in paragraph 2.2 of this report. An inspection plan (project file) was then drawn up. The visual inspection on site was carried out according to this inspection plan.

Wherever accessible, samples of the materials suspected of containing asbestos were taken for testing for asbestos content. These samples were analysed by an accredited laboratory. In the analysis certificates from the laboratory, shown in the appendices, the types of asbestos-containing material were determined. These types determine the method of material removal. During this inspection, small tools were used in accordance with the SC-540. In cases where sample-taking was deemed impossible, the techniques used were recorded by document referral or visual inspection.

The table on the following page contains a summary of the asbestos identified and its properties.
The photographs are shown in paragraph 2.3.

Material visually suspected of containing asbestos, but without possible analysis are also recorded in this table.

Source/ID	Description	Location	Quantity (±)[1]	Sample ID/ Serial no.	Analysis	Risk Class
2/228047 **Removed**	gasket (cardboard)	engine room, tank top deck	10 pcs	162699/MM49-06 162700/MM51-08	chrysotile 10-15% chrysotile 15-30%	2
3/228048 **Removed**	dust (cardboard)	engine room, tank top deck	1 sample	162701/KM50-07	chrysotile present	2
5/228050 **Removed**	gasket (cardboard)	engine room, tank top deck	24 pcs	162704/MM54-11 162705/MM55-12 162706/MM57-14 162707/MM58-15 162708/MM61-18 162709/MM63-20 162710/MM64-21	chrysotile 10-15%	2
10/231502	gasket (cardboard)	AC-room, D-deck	25 pcs	166401/MM69 166402/MM70 166403/MM71	chrysotile 30-60%	2

Table 1: Result Overview

The locations of the asbestos-containing material, and other materials suspected of containing asbestos, are indicated in the floor plans in the appendices. Photograph locations and sampling points are also indicated.

This survey report should be revised when asbestos removal is scheduled more than 3 years after the survey report date. Situation changes in the object/constructions should be reviewed regarding the asbestos containing materials within this object/construction. All changes are to be registered and added in a new version of the survey report before actual removal activities can take place. A revised version of the report is also required in case no changes are found.

Remarks:

- Due to the fact that the vessel inspected was in use during the survey, non-destructive survey techniques were used whenever possible. For example, spaces enclosed by permanent walls/ floors, finished with a permanent fix (e.g., glued coverings such as vinyl or linoleum) and spaces between sealed-off deck/bulkheads have been excluded from the survey;
- We, therefore, strongly recommend carrying out additional destructive spot surveys shortly before the start of recycling and/or conversion of the vessel on locations where no inspection has yet taken place.
- [1]) quantities of Asbestos Containing Materials (ACM) found during the survey are on-the-spot estimates only and thus unfit for planning and/or calculation purposes.
- No inspection was carried out behind asbestos containing items. These cannot be removed without the use of correct personal protection equipment.
- On board the vessel many different brands and types of gasket material are present. Many of these materials have been used in between the year of construction and the present time. To determine the exact amount of asbestos containing or asbestos free gaskets within the different systems onboard is nearly impossible due to this reason.
- Many flanges are tightly fitted therefore sampling was not possible. Original gaskets are often still present between these flanges, during the opening of these flanges this must be taken into consideration.
- From 01-01-2011 onwards, SOLAS Reg. 3-5/II-I (MSC.1 Circ.1374 and 1379) prohibits the use of asbestos onboard vessels, without any restrictions. This survey has been conducted according to SC-540 Standard and with reference to the NSI Instruction to Ship Owners (Ban on the use of asbestos on board ships), affective since 01-12-2011. Specific attention to these documents is required if the vessel is built after 1 July 2002 and asbestos containing materials are present on board.
- The objective of this survey (version 2.0) is to sample the locations that were pointed out by the client. Dust sampling took place in the area of the bilge manifold after the remediation of the contamination in the engine room (see source 3) and samples were taken from the gaskets of the central heating line in the AC-room.
- The asbestos containing gaskets used in the Aquamaster cooler line (see source 5) were removed by an asbestos removal company. During this survey it was not possible to sample these gaskets after remediation, because the flanges are tightly fitted. Gaskets used after remediation are from the Netherlands and therefore there is a small change that asbestos containing gaskets are used in the new pipelines.
- In appendix F, only the status of the previously listed ACMs as per report PAM-22867 (2011) are registered. These items are to be included in the overall removal process.
- Note: A four digit numbering system is applied in this report for distinguishing purposes in connection with previously taken samples of the prior survey.

Table of Contents

Foreword ..... **I**

Summary ..... **III**

1 Introduction **1**

1.1 Oesterbaai engineers 1

1.2 Asbestos in general 1

1.3 Relevant Legislation 3

2 Investigation and results **4**

2.1 Investigation method 4

2.2 Results Client/Manager Consultation and Desk Research 4

2.3 Visual Inspection & Sample Analysis Results 5

2.4 Non asbestos sources 15

3 Asbestos Survey Restrictions **23**

3.1 General Restrictions of Asbestos Survey 23

3.2 Restrictions Due to Constructional Inaccessibility 23

3.3 Locations Not Inspected for Asbestos 23

4 Asbestos Removal Proposal **25**

4.1 Outsourcing Removal 25

4.2 Asbestos Remission Techniques 25

4.3 Advice for Remission of the Identified Asbestos Sources 26

4.4 Risk Classification 27

5 Safety and Health **29**

5.1 Asbestos and Health Hazards 29

5.2 Calamities 30

6 Conclusions and Recommendations **31**

Appendix A. Locations of the various sources **33**

Appendix B. Certificates of the sample analysis **42**

Appendix C. Evaluation Form **43**

Appendix D. Client Liabilities According to Legislation and Regulations **45**

Appendix E. SMA-rt **48**

Appendix F. Status of the previous ACMs listed, to be included for removal. **49**

1 Introduction

1.1 Oesterbaai engineers

This document is an asbestos survey TYPE A report. All work was carried out in accordance with the SC-540 statutory requirements. This report complies with these statutory requirements. Companies are authorised to produce such reports when they hold a valid SC-540 certificate for asbestos surveys.

The asbestos survey must be performed professionally to secure the safety of the surveyor and anyone within the direct vicinity. The employees of ingenieursbureau Oesterbaai are aware of these health hazards. The ingenieursbureau Oesterbaai surveys are carried out only by professional, experienced individuals holding, at the very minimum, a DTA certificate.

This report has been generated with the utmost care. Should it not meet your expectations or should you have any queries or comments, please do not hesitate in contacting us.

1.2 Asbestos in general

Asbestos is a fibrous mineral material that was widely used in the past, mainly in construction. The main, positive characteristics of asbestos are its non-flammability, excellent damage-resistance, moisture-resistance and low costing.

Asbestos-containing materials are always composites (i.e., composed of different materials). Because asbestos fibres are not naturally bound, a binding agent is necessary, e.g. cement. Asbestos is almost always used as an additive. The lifespan of the *composite material* created in most cases is determined by the degree of binding agent, because asbestos itself is indestructible. A reduction in binding capacity is also identified as a reduction in the *adhesive bonding* of asbestos fibres. Fibre emission can increase when the adhesive bonding of the material decreases. This may be a health hazard.

In most countries, working with asbestos or asbestos-containing materials has been prohibited for quite some time. However, asbestos is still used in more than 100 different countries worldwide and can easily be purchased. Asbestos exposure becomes a health concern when high concentrations of asbestos fibers are inhaled over a long period of time (Please find a detailed explanation in Chapter Six.)

Terminology

Below is a brief explanation of commonly used terms.

Asbestos	The fibrous silicates actinolite, amosite, anthofyllite, chrysotile, crocidolite and tremolite, and products in which these silicates are processed.
Asbestos analysis	The analysis of a material or air sample for the presence, type and percentage /concentration of asbestos, carried out by an accredited laboratory.
Asbestos survey	There are three types of surveys which can be carried out on the SC-540 standard: TYPE A, TYPE B and TYPE O.
Containment	The structure where the remission will be carried out will be cordoned off. A legally determined level of suppression is maintained to prevent emission of asbestos fibres to the environment.
DTA Certificate	A DTA (Expert Supervisor Asbestos Removal) is an expert who has completed “DTA” training, with a final exam, at a training institute approved by the Ministry of Social Affairs and Employment.
Sampling	Random samples are taken from a specified batch in such a way that they represent the properties of that batch.
Risk Classification	Classification of demolition or other activities involving asbestos and/or asbestos-containing products, asbestos-contaminated material or asbestos-contaminated building elements under one of the three risk classifications, in accordance with the amended Labour Decree concerning asbestos dated 7 July 2006 (SC-540 lit. 1). The risk classification is based on the level of exposure to asbestos fibres that can be inhaled by workers and surroundings in accordance with the methodology described in the TNO report R 2004/523.
SC-540	Certification model drawn up by CCvD Asbest. Tested on the legislation and regulation by the Ministry of Social Affairs and Employment.

1.3 Relevant Legislation

Below is a summary of relevant legislations and regulations:

Relevant Legislation:	Status:
[1] Labour Conditions Act	Normative
[2] Statutory reference to SC-540 in the Labour Conditions Act. Please refer to related publication on www.ascert.nl.	Normative
[3] Asbestos Removal Decree 2005. Statute 2005 704	Normative
[4] Amendment of policies in the Labour Conditions Act, State Publication 7 August 2006, no. 51	Normative
[5] Products Decree Asbestos	Normative
[6] Report TNO-MEP R 2004/523 Risk-oriented classification of asbestos-related activities	Informative
[7] Management Convenant Ministry of Social Affairs and Employment and Foundation of Asbestos Certification, 8 March 2006. State Courant, 7 August 2006, no. 151/page 7	Normative
[8] Ministry of Social Affairs and Employment model for indication and inspection of certification institution.	Normative
[9] National Execution Methods of Asbestos Removal Decree 2005, Ministry of Public Health, Welfare and Sport: and LOM. Assistance to communities. Senter Novem June 2007.	Informative
[10] Future view Asbestos field; SCA 2005	Informative
[11] NEN 2990 Final inspection after removal	Normative
[12] NEN 2991 Risk assessment in non-demolition situations	Informative
[13] Guidelines for the development of the IHM, Resolution MEPC.197(62) Hong Kong Convention 17 July 2009	Informative
[14] SOLAS Regulation II-1/3-5	Normative
[15] MSC/IMO Circ. 1045	Normative
[16] MSC.1 Circ. 1374	Normative
[17] MSC.1 Circ. 1379	Normative
[18] NSI Instruction to Ship owners, affective since 01-12-2011	Normative

2 Investigation and results

2.1 Investigation method

The Asbestos Survey TYPE A is carried out systematically. Initial, consultation between Client and contractor took place whenever possible. Afterwards, desk research was carried out using blueprints and building specifications, if provided by the Client, from which an inspection plan was drawn up. Subsequently, the site was inspected systematically for the presence of materials suspected of containing asbestos, according to the previously drafted inspection plan.

During the inspections the following elements, whenever possible, are visually inspected:

- Technical installations
- Fire resistant constructions and facilities
- Parts with a decorative or finishing purpose
- Damming constructions and facilities
- During fabrication of materials
- Presence of asbestos waste

In this process, samples are taken of materials suspected of containing asbestos. These samples are submitted for analysis at an accredited laboratory.

2.2 Results Client/Manager Consultation and Desk Research

Consultation with Client's representative	Result
Captain	Remediation took place on board the vessel. The contamination near the bilge manifold is removed (see source 3) and the asbestos containing gaskets used in the Aquamaster cooler line are removed (see source 5).

table 1: Consultation with Client's representative

2.3 Visual Inspection & Sample Analysis Results

During visual inspection, the materials suspected of containing asbestos (which came up during inspection) were examined. They were also tested for possible secondary contamination; for example, remnants of asbestos waste that were left behind during previously performed asbestos remission.

A visual inspection was then carried out for other materials suspected of containing asbestos.
In order to be 100% certain that a suspicious material contains asbestos, an analysis of a sample of that material must be carried out by a specialised laboratory. If concluded that a material is asbestos-containing, other than via laboratory analysis, it is indicated as follows: “Intechnium asbestos manual,” “visual observation,” or “material stamp with year figure.” If no sample is taken, because sampling is hazardous to the inspector(s) or at inaccessible locations, this material is specified as: “suspected of containing asbestos.”

For the sake of clarity, photographs and detailed specifications of these materials are included in this paragraph. There are also photographs of the materials inspected, suspected of containing asbestos, which turned out NOT to be asbestos-containing. These materials are also included to avoid confusion during asbestos removal work. The numbers of the locations correspond to the numbers on the floor plan and the photographs.

The risk classification of every asbestos source has to be determined for remediation, as stated within the Labour Conditions Act. The following publications were used as guidance for determining risk classification: an August 2006 publication from the Ministry of Social Affairs and Employment, and the TNO-report, R 2004/523 “Risk oriented classification of asbestos-related activities.”

Source 2: gasket, (cardboard)	Source ID (EVA): 228047

certificate / sample	:	**2014.004190**: (MM49-06) & (MM51-08)
location	:	engine room, tank top deck
quantity (±)[1]	:	10 pcs
securing method	:	clamped in between flanges
degree of binding	:	friable
condition	:	severely damaged
accessibility	:	well

risk classification	:	**2**
recommendation	:	N/A
removal plan	:	**Removed**
remark	:	N/A

asbestos	**percentage**
chrysotile	10-15%; according to laboratory analysis (PLM)
chrysotile	15-30%; according to laboratory analysis (PLM)

remarks:

This concerns flange gaskets of the Bilge manifold located mid-ship engine room.

MM49-06: gasket of the valve that was disconnected.

MM51-08: flange gasket manifold, still in place.

After survey PAM-40067 (version 1.0) this source was removed. During survey PAM-40863 (version 2.0) additional samples were taken to make sure that this source was removed (see source 9, non-asbestos sources).

photo: 2: gasket, (cardboard)

photo: Sample 51-08 Asbestos containing

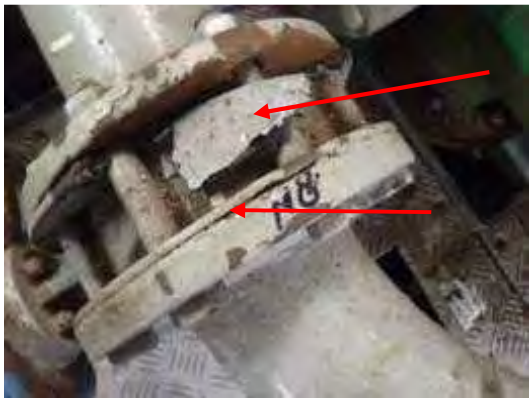


photo: Sample 51-08 Asbestos containing

Source 3: dust, (cardboard)	Source ID (EVA): 228048

certificate / sample	:	**2014.004191**: (KM50-07)
location	:	engine room, tank top deck
quantity (±)[1]	:	1 pc
securing method	:	loose
degree of binding	:	friable
condition	:	severely damaged
accessibility	:	well

risk classification	:	**2**
recommendation	:	N/A
removal plan	:	**Removed**
remark	:	n/a

asbestos	percentage
chrysotile	present; according to laboratory analysis (SEM)

remarks:

This concerns valve flange gasket remnants which are disconnected from the Bilge manifold prior to sampling.

After survey PAM-40067 (version 1.0) this source was removed. During survey PAM-40863 (version 2.0) additional samples were taken to make sure that this contamination was removed (see source 9, non-asbestos sources).

photo: 3: dust, (cardboard)

Source 5: gasket, (cardboard)	Source ID (EVA): 228050

certificate / sample :	**2014.004190**: (MM54-11), (MM55-12), (MM57-14), (MM58-15), (MM61-18), (MM63-20) & (MM64-21)
location :	engine room, tank top deck
quantity (±)[1] :	2 x 12 pcs, total 24 pcs
securing method :	clamped in between flanges
degree of binding :	friable
condition :	slightly damaged
accessibility :	well

risk classification :	**2**
recommendation :	N/A
removal plan :	**Removed**
remark :	n/a

asbestos	**percentage**
chrysotile	10-15%; according to laboratory analysis (PLM)

remarks:

This concerns flange gasket of the Port Side and Starboard Side Aquamaster cooler line system.

After survey PAM-40067 (version 1.0) this source was removed. During survey PAM-40863 (version 2.0) survey it was not possible to sample these gaskets after remediation, because the flanges are tightly fitted. Gaskets used after remediation are from the Netherlands and therefore there is a negligible change that asbestos containing gaskets are used in the new pipelines.

*photo: 5: gasket, (cardboard), **before removal***

photo: Sample 55-12, Asbestos containing

before removal

photo: Sample 55-12, detail, Asbestos containing

before removal

photo: Sample 57-14, Asbestos containing

before removal

photo: Sample 57-14, detail, Asbestos containing

before removal

photo: Sample 58-15, Asbestos containing

before removal

photo: Sample 58-15, detail, Asbestos containing

before removal

photo: Sample 61-18, Asbestos containing

before removal

photo: Sample 61-18, detail, Asbestos containing

before removal

photo: Sample 63-20, Asbestos containing

before removal

photo: Sample 63-20, detail, Asbestos containing

before removal

photo: Sample 64-21, Asbestos containing

before removal

photo: Sample 64-21, Asbestos containing

before removal

photo: Aquamaster cooler line after remediation. It was not possible to sample these flanges.

photo: Aquamaster cooler line after remediation. It was not possible to sample these flanges.

photo: Aquamaster cooler line after remediation. It was not possible to sample these flanges.

photo: Aquamaster cooler line after remediation. It was not possible to sample these flanges.

photo: Aquamaster cooler line after remediation. It was not possible to sample these flanges.

Source 10: gasket, (cardboard)	**Source ID (EVA): 231502**

certificate / sample	:	**2014.010993**: (MM69) (MM70) (MM71)
location	:	AC-room, D-deck
quantity (±)[1]	:	25 pcs
securing method	:	clamped in between flanges
degree of binding	:	friable
condition	:	slightly damaged
accessibility	:	well

risk classification	:	**2**
recommendation	:	Management plan and remediation at first possible option recommended.
removal plan	:	containment
remark	:	N/A

asbestos	**percentage**
chrysotile	30-60%; according to laboratory analysis (PLM)

remarks:

This concerns flange gaskets used in the central heating line in the AC-room on D-deck. 3 samples are taken on this location: MM69, MM70 and MM71.

photo: 2: gasket, (cardboard), MM69 – gasket in central heating line in the AC-room.

photo: MM70 – gasket om central heating line in the AC-room.

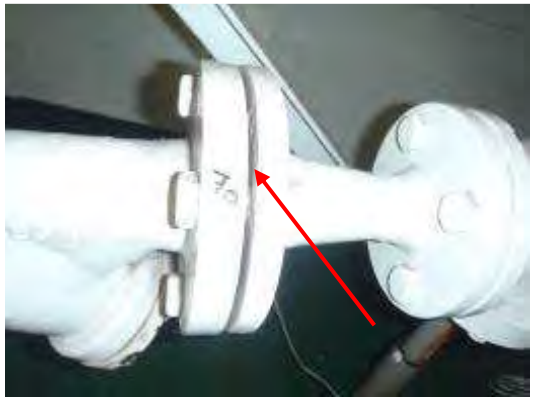


photo: MM70 – gasket om central heating line in the AC-room.

photo: MM71 – gasket om central heating line in the AC-room.

photo: MM71 – gasket om central heating line in the AC-room.

2.4 Non asbestos sources

Source 1: gasket, (cardboard)		**Source ID (EVA): 228046**
certificate / sample :	**2014.004190**: (MM44-01), (MM45-02), (MM46-03), (MM47-04) & (MM48-05)	MM44-01
location :	engine room, tank top deck,	
quantity (±)[1] :	10 pcs	
remarks :	This concerns flange gaskets of the Bilge manifold located mid-ship engine room.	MM44-01, detail
asbestos	**percentage**	
no asbestos	< 0,1% (none); according to laboratory analysis (PLM)	MM45-02 MM45-02, detail

photo: Sample 46-03, Asbestos free

photo: Sample 46-03,detail, Asbestos free

photo: Sample 47-04, Asbestos free

photo: Sample 47-04, detail, Asbestos free

photo: Sample 48-05, Asbestos free

photo: Sample 48-05, detail, Asbestos free

Source 4: gasket, (cardboard)		**Source ID (EVA): 228049**
certificate / sample :	**2014.004190**: (MM52-09) & (MM53-10)	MM52-09
location :	engine room, tank top deck	
quantity (±)[1] :	6 pcs	
remarks :	This concerns valve flange gaskets of the Port Side Sea Chest inlet system.	MM52-09, detail
asbestos	**percentage**	
no asbestos	< 0,1% (none); according to laboratory analysis (PLM)	MM53-10 MM53-10, detail

Source 6: Seal, (rope seal)		**Source ID (EVA): 228051**
certificate / sample :	**2014.004190**: (MM65-22)	
location :	accommodation, A-deck	
quantity (±)[1] :	2 pcs	
remarks :	This concerns rope seal used in Port Side and Starboard stairwell door frames. This same type of rope seal is presumably used on various other door frames throughout the accommodation.	
asbestos	**percentage**	
no asbestos	< 0,1% (none); according to laboratory analysis (PLM)	

Source 7: insulation, (insulation material)		**Source ID (EVA): 228052**
certificate / sample :	**2014.004190**: (MM66-23)	
location :	technical area, tank top deck	
quantity (±)[1] :	1 pc	
remarks :	This concerns insulation material used in the casing of boiler nr. 1, Port Side FWD.	
asbestos	**percentage**	
no asbestos	< 0,1% (none); according to laboratory analysis (PLM)	

Source 8: gasket, (cardboard)		**Source ID (EVA): 230207**
certificate / sample :	**2014.004190**: (MM56-13) (MM59-16) (MM60-17) (MM62-19)	MM56-13 - PS Aquamaster cooler line.
location :	steering gear room, tanktop	
quantity (±)[1] :	undetermined	
remarks :	This concerns flange gaskets used in the Aquamaster cooler line. 4 samples are taken on the the following locations: MM56-13 - PS Aquamaster cooler line. MM59-16 - SB Aquamaster cooler line. MM60-17 - SB Aquamaster cooler line. MM62-19 - SB Aquamaster cooler line.	MM56-13 - PS Aquamaster cooler line.
asbestos	**percentage**	
no asbestos	< 0,1% (none); according to laboratory analysis (PLM)	

photo: MM59-16 - SB Aquamaster cooler line.

photo: MM59-16 - SB Aquamaster cooler line.

photo: MM60-17 - SB Aquamaster cooler line.

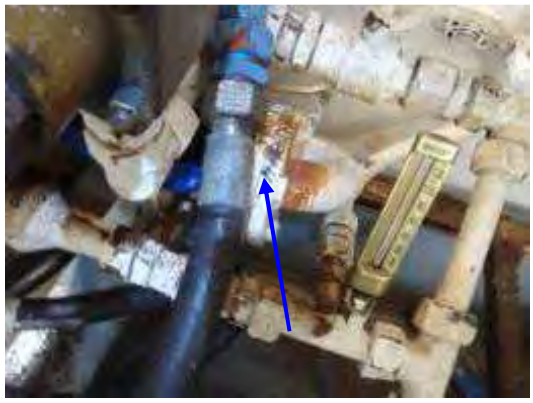


photo: MM60-17 - SB Aquamaster cooler line.

photo: MM62-19 - SB Aquamaster cooler line.

photo: MM62-19 - SB Aquamaster cooler line.

Source 9: dust, (unknown)		**Source ID (EVA): 231500**
certificate / sample :	**2014.010993**: (KM66) (KM67) (KM68)	KM66 KM66
location :	engine room, tanktop	
quantity (±)[1] :	undetermined	
remarks :	This concerns 3 dust samples taken in the area around the bilge manifold in the engine room on tanktop. In the previous survey a contamination was found on this location (see source 3). These samples are taken after removal. No asbestos was found on the dust samples taken during this survey.	
asbestos	**percentage**	
no asbestos	< 0,1% (none); according to laboratory analysis (PLM)	

photo: KM67

photo: KM67

photo: KM68

photo: KM68

3 Asbestos Survey Restrictions

3.1 General Restrictions of Asbestos Survey

In every asbestos risk survey carried out by Oesterbaai engineers, work is carried out very thoroughly and systematically. Particular attention is paid to tracing all asbestos-containing materials. Through correct preparation, employment of specialised and experienced personnel and the execution of asbestos survey, according to well thought-out plan, minimises asbestos-containing materials being overlooked.

There is always a small chance that asbestos-containing materials are left unnoticed, despite the knowledge of more than 3500 applications. The scope of services was defined by the requests of the Client, by the time and budgetary constraints imposed by the Client, and by the availability of access to the site. The investigation is merely an observation of a given moment.

Oesterbaai engineers are not responsible for anything that may have changed at the investigation location, after the investigation date. This report follows an obligation to endeavour, not an obligation, for results.

3.2 Restrictions Due to Constructional Inaccessibility

The aim of this asbestos risk survey is to identify all asbestos-containing materials. However, there are certain situations that can only be inspected by means of destructive methods, which can harm the vessel's integrity; examples are asbestos applications inside live equipment/cofferdams or asbestos cement adjustment plates under or beneath walls and void spaces concealed or filled with rubble, etc. There is always a possibility that concealed asbestos-containing applications are left unnoticed due to constructional inaccessibility.

3.3 Locations Not Inspected for Asbestos

Whenever the survey is carried out on a vessel in use, destructive actions are kept to a minimum. This also applies explicitly to pipe insulation, which means that all pipe insulation is restricted due to constructional inaccessibility, except for locations where damage is visible down to the core, or where the material is sampled.

In shafts, twin-walls, funnels and other locations only accessible through destructive investigation, and where no destructive investigation was carried out, no visual inspection was carried out.

In the table below the surveyor recorded a few specific restrictions recorded during the asbestos survey on the project location. No visual inspections could be performed due to these restrictions.

Location Specific Limitations During Asbestos Survey
Excluded from this survey are: inside of voids, tanks, holds, bilges and live equipment

table 2: limitations during survey

4 Asbestos Removal Proposal

4.1 Outsourcing Removal

In the Netherlands, it is a legal requirement to remove the asbestos from a property/object or property/object to be demolished, before resuming demolition. Companies holding the SC-530 Process Certificate of Asbestos Removal are authorised to remove asbestos. Various (certified) asbestos-removal companies can be invited to submit proposals for asbestos removal.

4.2 Asbestos Remission Techniques

There are a number of techniques for the removal of asbestos-containing materials. The techniques are aimed at limiting the dispersion of asbestos fibres into the environment and keeping possible health risks to the implementing staff to a minimum. The removal methods are divided into four categories:

1. *Use of a containment:*

If containment is used, an air-tight work space (enclosure) is created around the location of the asbestos source(s), thus ensuring that there is no emission of asbestos fibres into the environment. In the work space, negative pressure is created using a powerful exhaust system. This system has a very fine HEPA filter that filters the asbestos fibres from the air in the work space; it then discharges clean air in the work space, which is continuously refreshed. Having created the negative pressure, asbestos-containing material removal can be resumed. This is carried out by operators using appropriate protective clothing and protective breathing equipment. Once all asbestos has been removed, an air measurement (release) is carried out by an independently certified and accredited laboratory. The containment may only be removed once the volume of asbestos fibres measured in the air falls below the minimum statutory limit.

2. *Use of a glove bag:*

A glove bag is a special airtight bag that is fitted around the asbestos-containing material. This bag has built-in gloves that allow work to be done in an isolated environment, preventing dispersion of asbestos fibres into the environment. As a precaution, the operators use appropriate protective clothing and protective breathing equipment.

3. *Outside Remediation:*

This is done outside, without an airtight workspace and is permitted only in a limited number of cases; for example, if the asbestos-containing material can be removed without damage, so that there is no risk of the emission of asbestos fibres into the environment. In such situations, the asbestos-containing material has to be solid, have good binding capacity, and has to be easily dismantled. Safety regulations state that contractors are required to wear protective clothing and protective breathing equipment. A visual inspection must be carried out by an inspector from a RvA-approved laboratory after completion of tasks.

4. *Direct Wrapping:*

Direct wrapping is permitted if the asbestos-containing material is loose or attached to an easily dismantled object or an object which is already detached. The asbestos source is impregnated with a latex-based spray before removal. The asbestos-containing material is then double-wrapped and disposed of as asbestos-containing waste.

4.3 Advice for Remission of the Identified Asbestos Sources

Asbestos sources can be harmful to the environment and to people working or living in the area/room where asbestos is present. In general, asbestos sources can remain in that area/room as long as the asbestos fibres are bound in the material, e.g. in cement plates. There is no real risk of inhaling asbestos fibres provided that those materials are undamaged.

Asbestos sources, in which the asbestos sources are not securely bound, pose an actual risk; for example, in pipe insulation and asbestos sprayed onto steel structures.
In the table below, a differentiation is made between asbestos sources that have to be removed due to actual risk and asbestos sources that can safely remain on the vessels/platforms until renovation (maintenance) or demolition of the vessels/platforms.

The table indicates remission methods recommended for each asbestos source. However, please note that this recommendation is not binding. The certified asbestos remediation officer may deviate from the recommendations.

Source/ID	Description	Removal methods	Removal remarks
2/ 228047	cardboard, gasket	containment	**Removed**
3/ 228048	cardboard, dust	containment	**Removed**
5/ 228050	cardboard, gasket	containment	**Removed**
10/ 231502	cardboard, gasket	containment	N/A

Table 3: Remission technique recommendations and risk classification

4.4 Risk Classification

The risk classification of all identified asbestos-containing materials have been determined in accordance with “Commandment of 7th July 2006 to amend the Labour Conditions Act containing regulations regarding the exposure of employees to the hazards of asbestos” has been announced in the publication, “Staatsblad 348 year 2006”.

The SMa-rt tool has been used to determine the risk level. SMA-rt, provided by the Ministry of Social Affairs and Employment, can be found by visiting the official website www.asbestinfo.nl. The subdivisions in the risk classes are based on air measurements that comply with the Health and Safety Act. SMa-rt is a dynamic system; Risk classes can change after the survey date due to changes in founded perceptions.

Risk class 1: LOW risk of exposure to asbestos
Art. 4.44: exposure level less than 0.01 fibers/cm^3
(less than 10,000 fibers/m^3)

Risk class 2: MEDIUM risk of exposure to asbestos
Art. 4.48: exposure level is 0.01 to 1 fibers/cm^3
(10,000 till 1,000,000 fibers/m^3)

Risk class 3: HIGH risk of exposure to asbestos
Art. 4.53a: exposure level higher than 1 fiber/cm^3
(more than 1,000,000 fibers/m^3)

Source/ID	Description	Risk Classification	Risk Class remarks
2/ 228047 **Removed**	gasket (cardboard)	2	Chipping off affected gasket material on the flange(s) or sandblasting the flange(s).
3/ 228048 **Removed**	dust (cardboard)	2	This concerns the removal of friable asbestos containing remnants or asbestos dust (amosite, chrysotile, etc.)
5/ 228050 **Removed**	gasket (cardboard)	2	Chipping off affected gasket material on the flange(s) or sandblasting the flange(s).
10/ 231502	gasket (cardboard)	2	Chipping off affected gasket material on the flange(s) or sandblasting the flange(s).

Table 4: Risk classification and remarks

5 Safety and Health

5.1 Asbestos and Health Hazards

Asbestos fibres are harmful to human health. The asbestos fibres can enter the human body through the mouth, stomach and intestines, via the skin and the airways. Research has shown that asbestos fibres that have penetrated the body can have harmful effects. The risk of asbestos-related disease, however, is greatest if asbestos fibres are inhaled.

The inhalation of asbestos fibres can jeopardise human health. The dimensions of asbestos fibres greatly influence the health hazards. Asbestos fibres with longer than 5 µm, with a diameter of less than 3 µm and a length / width ratio of greater 3 : 1 are the most harmful. Due to their microscopically small dimensions, these fibres are invisible to the naked eye, and are thus unnoticeably inhaled. A large proportion of the inhaled harmful asbestos fibres, which enter the lungs, cannot be discharged by the lungs. These fibres remain in the lungs, and once there, can cause damage in a number of ways. The symptoms do not emerge immediately but are often only noticed years later.

Harmful asbestos fibres which have entered the body can cause three types of diseases: asbestos-related lung cancer, asbestosis and Mesothelioma. All diseases mentioned can be contracted only through inhalation of asbestos fibres.

Asbestos-related lung cancer:

Harmful asbestos fibres can damage the lung cells in the alveoli. These damaged cells can disrupt the multiplication process in the cells. The result can be uncontrolled growth, which is known as lung cancer. Asbestos-related lung cancer can be caused by any type of asbestos, and may also occur following limited exposure to asbestos fibres. The combination of smoking *and* exposure to asbestos greatly increases the chances of contracting lung cancer, compared to exposure to asbestos inhalation only or smoking only. Generally speaking, the period between exposure to asbestos and the diagnosis of lung cancer is more than 10 years.

Mesothelioma:

Organs such as the lungs and the heart are surrounded by a membrane that forms a sac around the organ. As a result, the organ can move without being obstructed by other body parts. Asbestos fibres that have penetrated the lungs or intestines can damage the cells of the chest or stomach membrane. The damaged cells can lead to malignant, uncontrolled cell growth in these membranes.

Mesothelioma can be caused after a very brief exposure to small concentrations of asbestos dust. The more frequent the exposure and the greater the fibre concentrations, the greater the risk of developing Mesothelioma. Mesothelioma can develop only from exposure to asbestos fibres, particularly crocidolite and amosite fibres. The period between exposure to asbestos and the diagnosis of Mesothelioma can vary from 10 and 60 years. Mesothelioma is incurable and once the syndrome has been identified, life expectancy is between 6 months to 2 years.

Asbestosis:

Asbestosis, a pulmonary disease, can be caused by exposure to very high concentrations of asbestos fibres. Lung capacity is reduced as a result of large quantities of asbestos in the lungs. The decrease in lung capacity means that the heart has to pump harder to transport oxygen to the rest of the body. The heart, eventually, will be overloaded due to insufficient capacity. Asbestosis can be developed 10 to 30 years after exposure to asbestos fibres, and it is incurable.

5.2 Calamities

Before or during the dismantling or renovation work, calamities or disasters could arise where large asbestos fibre emissions occur. For example, as a result of fire or collapse, asbestos sources present in the object can be damaged in such a way that it results in contamination. In these cases, it is vital that the emission of asbestos fibres to the environment and human exposure to asbestos fibres be kept to a minimum. People without personal protective equipment and protective breathing equipment should be as far as possible from the asbestos source. In the event of disasters, the following bodies should be immediately contacted: municipal authorities, police, health and safety at work inspectorate, health and safety at work services and environmental hygiene inspectorate.

6 Conclusions and Recommendations

At the asbestos survey TYPE A in accordance with SC-540 on board Jan Steen, at the time of the inspection located at Oranjewerf in Amsterdam and the Van Oord Yard in Moerdijk, the following asbestos-containing materials were found:

Source/ID	Description	Location	Quantity (±)[1]	Sample ID/ Serial no.	Analysis	Risk Class
2/228047 **Removed**	gasket (cardboard)	engine room, tank top deck,	10 pcs	162699/MM49-06 162700/MM51-08	chrysotile 10-15% chrysotile 15-30%	2
3/228048 **Removed**	dust (cardboard)	engine room, tank top deck,	1 sample	162701/KM50-07	chrysotile present	2
5/228050 **Removed**	gasket (cardboard)	engine room, tank top deck,	24 pcs	162704/MM54-11 162705/MM55-12 162706/MM57-14 162707/MM58-15 162708/MM61-18 162709/MM63-20 162710/MM64-21	chrysotile 10-15%	2
10/231502	gasket (cardboard)	AC-room, D-deck	25 pcs	166401/MM69 166402/MM70 166403/MM71	chrysotile 30-60%	2

Table 5: Overview results

[1]) quantities of asbestos-containing materials found during the survey are on-the-spot estimates and are thus unfit for planning and/or calculation purposes

Certificates of samples analysed have been included in the appendices.
The removal methods recommended for the asbestos-containing materials are included in Chapter Four. Ingenieursbureau Oesterbaai b.v. aimed for the most comprehensive detection and registration of asbestos-containing materials, during the survey, in accordance with the SC-540 standard and with reference to the NSI Instruction. Nonetheless, we recommend that potential contractors for the asbestos removal work have a survey made of the remediation location, so that they themselves can obtain an impression of the situation, in situ.

This survey report should be revised when asbestos removal is scheduled more than 3 years after the survey report date.

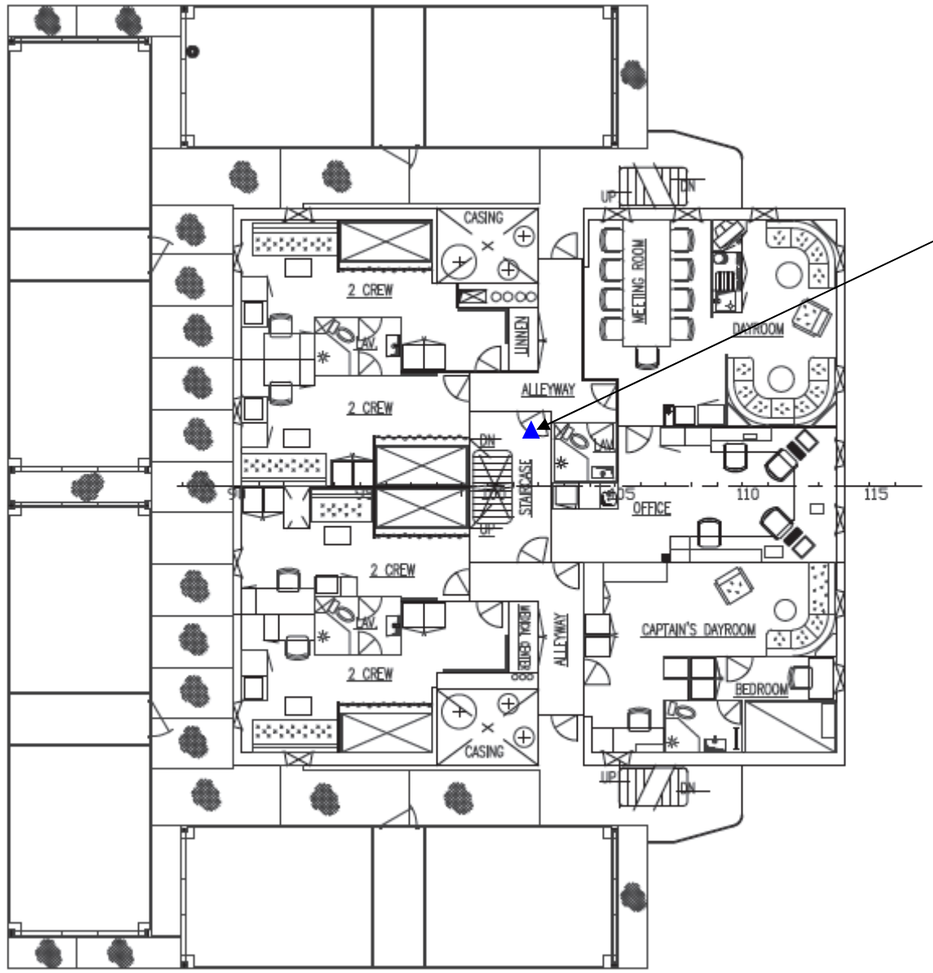
When none or limited destructive survey has been undertaken, a TYPE B survey is necessary. This way, places that were previously inaccessible can be inspected.
There is a legal requirement to have asbestos removal work carried out by a company certified in accordance with the SC-530 standard. Following remediation, it may be legally required to have an independent RvA accredited laboratory carry out a release (measurement) in order to check the work of the remediation company, and to determine if the remediated area(s) can be entered safely.

In all circumstances, it is advisable to call in an independent laboratory, after completion of tasks. It may also be worthwhile to have an independent laboratory or consultancy firm supervise the project (progress and safety), and inspect the asbestos removal work. Total project supervision from planning, appointment of remediation company, right through to release is another option worth considering. Ingenieursbureau Oesterbaai b.v. would be pleased to offer its services in any subsequent phases of the project.

Appendix A. Locations of the various sources

This appendix shows floor plans with sample locations. Not all locations of asbestos-containing or asbestos-free items are marked. Only sampling points are marked

A - DECK



LEGEND:

MV Jan Steen

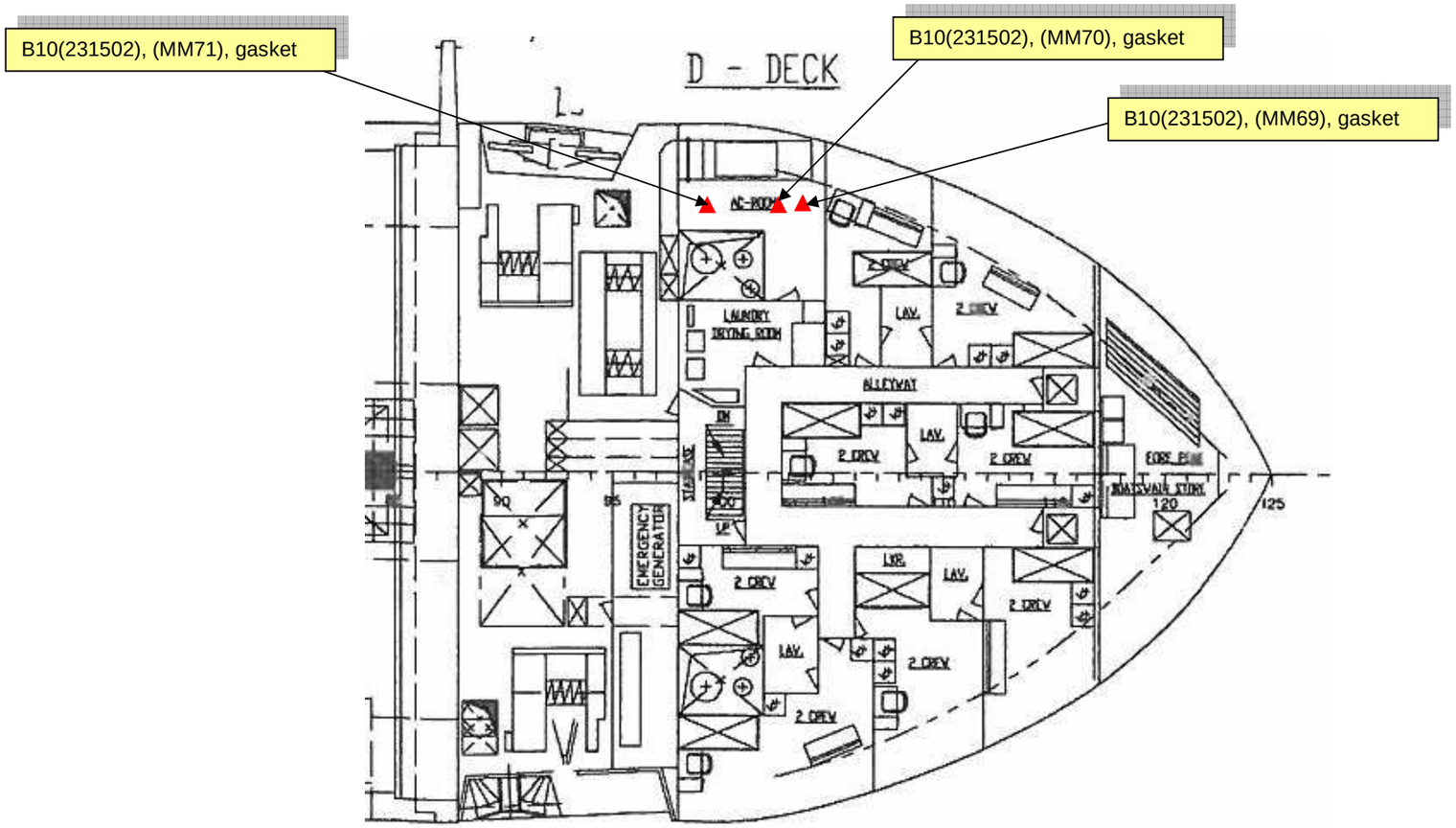
Deck level: A-deck

B00 = Source number

M00 = Material sample

▲ Asbestos-containing object(s)

▲ Asbestos-free object(s)/material(s)



LEGEND:

MV Jan Steen

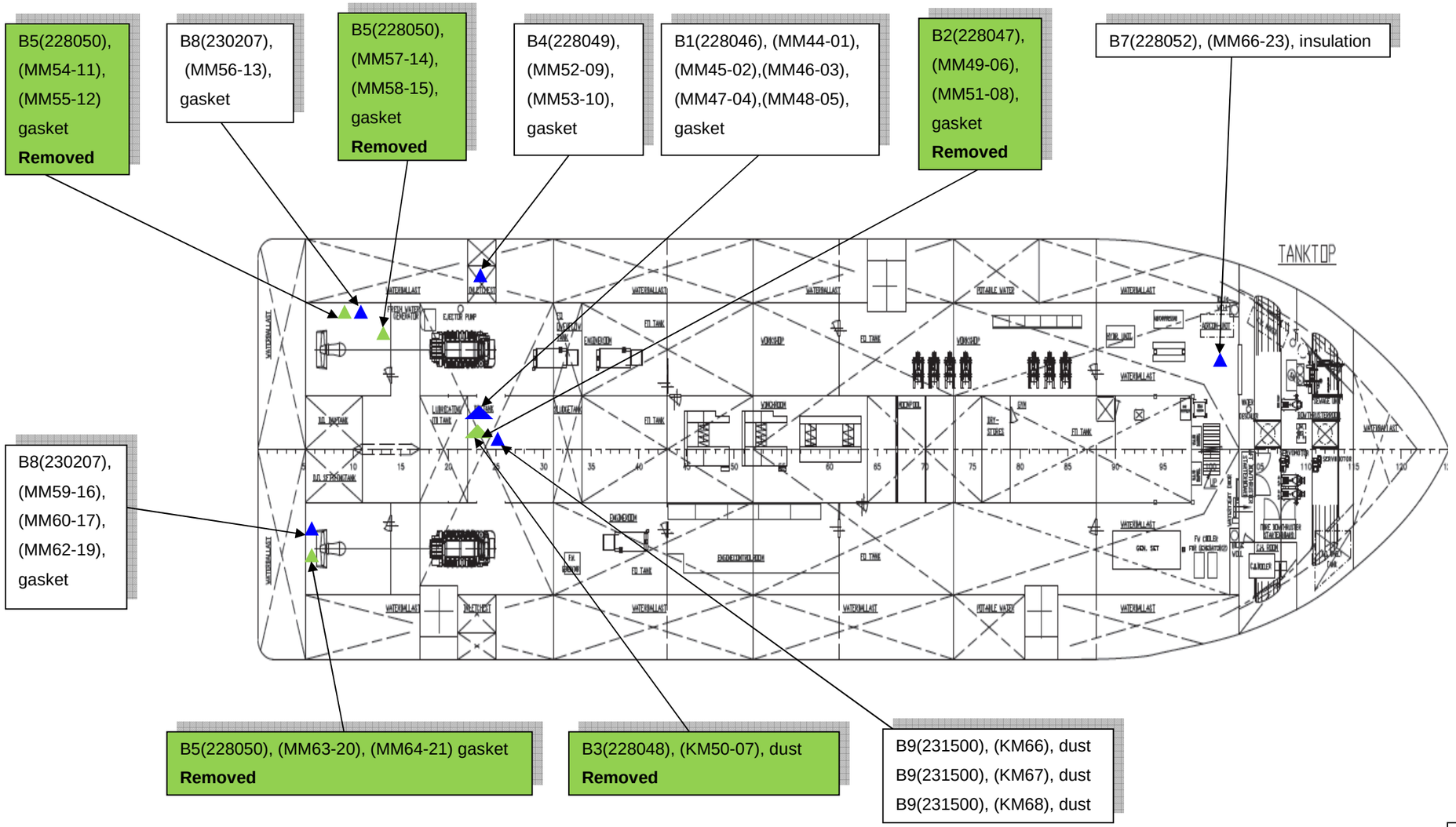
Deck level: D-deck

B00 = Source number

M00 = Material sample

▲ Asbestos-containing object(s)

▲ Asbestos-free object(s)/material(s)



LEGEND:

MV Jan Steen

Deck level: Tank top Deck

B00 = Source number

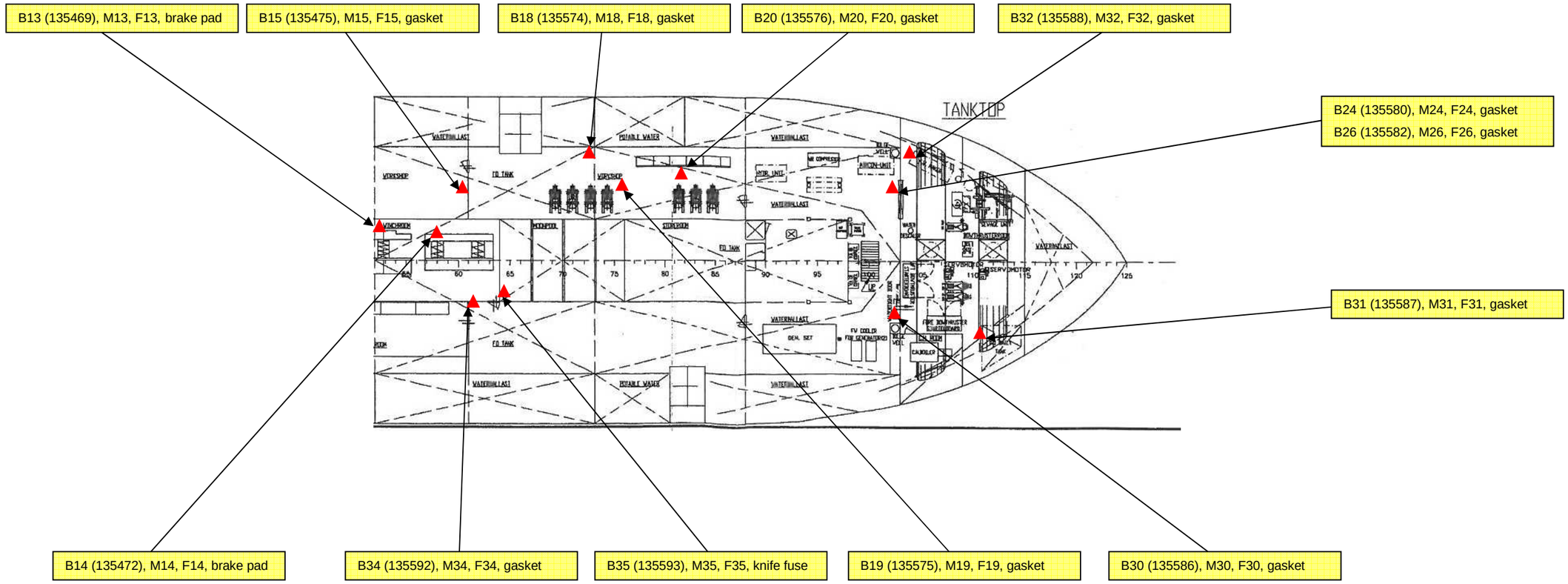
M00 = Material sample

▲ Asbestos-containing object(s)

▲ Asbestos-free object(s)/material(s)

▲ Removed sources

Remark: This drawing illustrates the locations of the ACMs listed in the previous Type A report, PAM 22867 dated June 16th 2011, which needs to be included in the overall removal



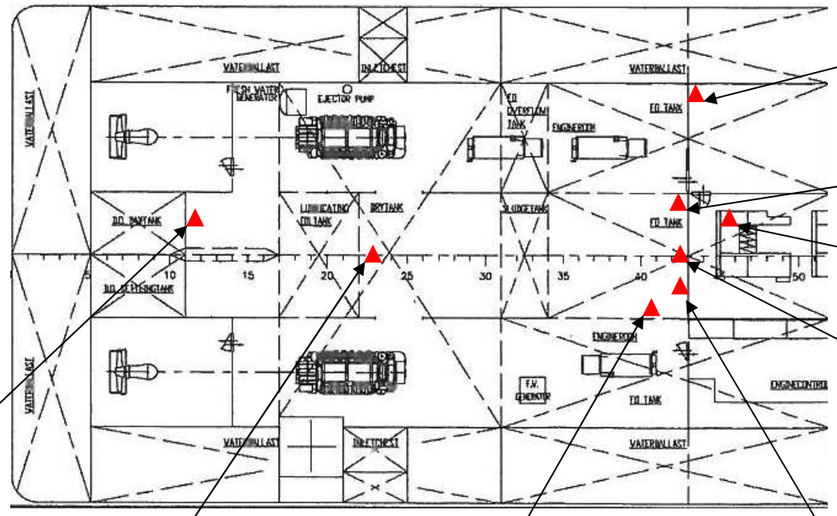
LEGEND: MV **Jan Steen**

Deck level: Tank Top Deck

B00 = Source number
M00 = Material sample

▲ Asbestos-containing object(s)
▲ Asbestos-free object(s)/material(s)

Remark: This drawing illustrates the locations of the ACMs listed in the previous Type A report, PAM 22867 dated June 16th 2011, which needs to be included in the overall removal



B11 (135465), M11, F11, gasket

B5 (135457), M5, F5, gasket

B12 (135466), M12, F12, brake pad

B10 (135464), M10, F10, gasket

B2 (135454), M2, F2, gasket

B3 (135455), M3, F3, gasket

B6 (135458), M6, F6, gasket
B7 (135459), M7, F7, gasket

B8 (135460), M8, F8, gasket

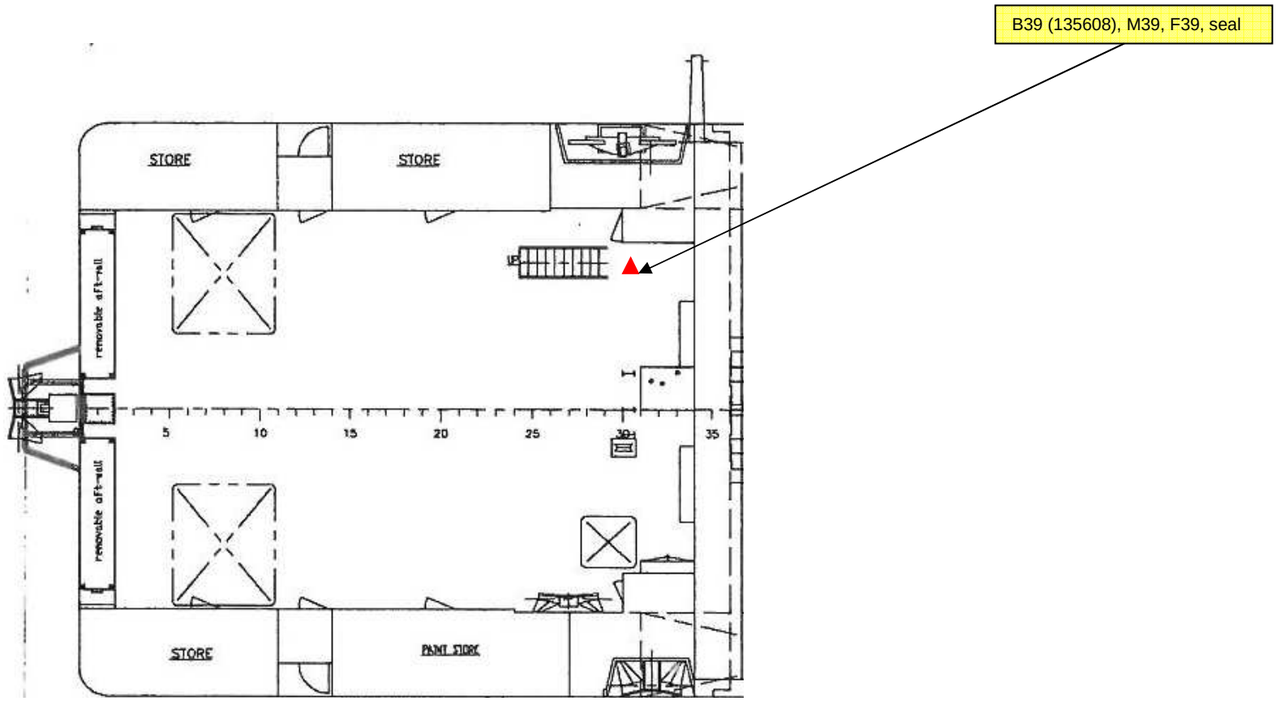
LEGEND: MV Jan Steen

Deck level: Tank Top Deck AFT

B00 = Source number
M00 = Material sample

▲ Asbestos-containing object(s)
▲ Asbestos-free object(s)/material(s)

Remark: This drawing illustrates the locations of the ACMs listed in the previous Type A report, PAM 22867 dated June 16th 2011, which needs to be included in the overall removal



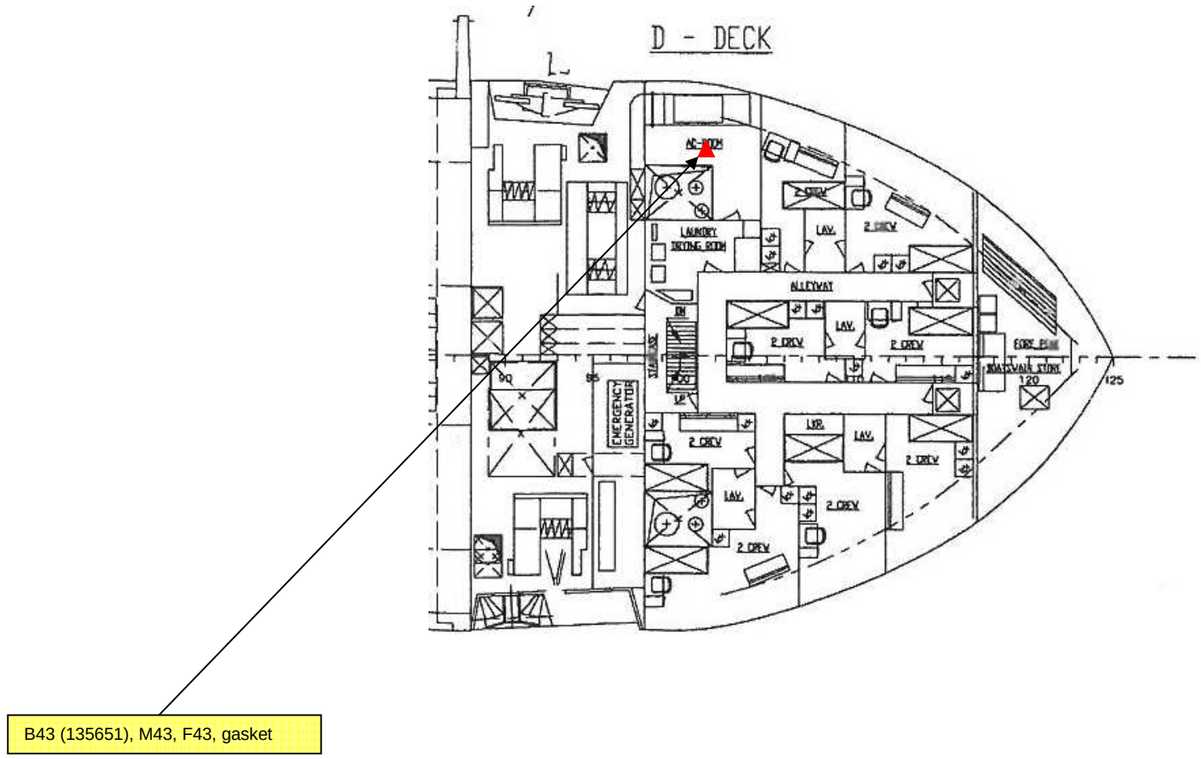
LEGEND: MV **Jan Steen**

Deck level: D-Deck AFT

B00 = Source number
M00 = Material sample

▲ Asbestos-containing object(s)
▲ Asbestos-free object(s)/material(s)

Remark: This drawing illustrates the locations of the ACMs listed in the previous Type A report, PAM 22867 dated June 16th 2011, which needs to be included in the overall removal



LEGEND: MV **Jan Steen**

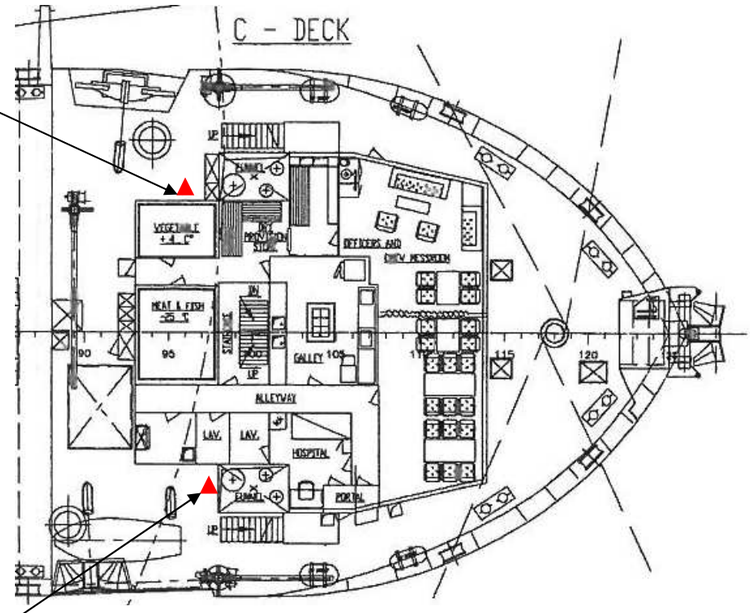
Deck level: D- Deck

B00 = Source number
M00 = Material sample

▲ Asbestos-containing object(s)
▲ Asbestos-free object(s)/material(s)

Remark: This drawing illustrates the locations of the ACMs listed in the previous Type A report, PAM 22867 dated June 16th 2011, which needs to be included in the overall removal

B41 (135626), M41, F41, gasket



B42 (135644), M42, F42, gasket

LEGEND: MV **Jan Steen**

Deck level: C-Deck

B00 = Source number
M00 = Material sample

▲ Asbestos-containing object(s)
▲ Asbestos-free object(s)/material(s)

Appendix B. Certificates of the sample analysis

The following page(s) show the analysis results of the samples taken from suspected asbestos-containing materials.

2014.010993

Certificate of Analysis

confidential

Oesterbaai B.V.
Hongkongstraat 5
3047 BR ROTTERDAM

Details

client reference : PAM-40863, Jan Steen, Van Oord
sample location : Moerdijk
sampling by : Oesterbaai B.V.
analyses performed : NEN 5896
Analysis location : Rotterdam
date received : 25-03-2014
date analyzed : 26-03-2014
samples analyzed : 6

Results

FBC ID	Client sample description / ID	Material type	Asbestos* type	Percentage	Friability
258600	KM66 - Dust sample on floor near bilge manifold in the engine room.	Adhesive tape	n.a.	<0,1%	n.a.
258601	KM67 - Dust sample on floor near bilge manifold in the engine room.	Adhesive tape	n.a.	<0,1%	n.a.
258602	KM68 - Dust sample on top of the bilge manifold in the engine room.	Adhesive tape	n.a.	<0,1%	n.a.
258603	MM69 - Flange gasket used in the central heating line in the AC-room.	Gasket	chrysotile	30-60%	friable
258604	MM70 - Flange gasket used in the central heating line in the AC-room.	Gasket	chrysotile	30-60%	friable
258605	MM71 - Flange gasket used in the central heating line in the AC-room.	Gasket	chrysotile	30-60%	friable

*Asbestos: collective noun for different kinds of asbestos: chrysotile, amosite, crocidolite, actinolite, anthofullite, tremolite.
The estimation of asbestos friability (if present) is purely based on the received samples.
Fibrecount recommends scanning electron microscopy (SEM - ISO14966) analysis on organically bound materials (eg. floor tile, mastics, roofing materials, joint compounds) when PLM analysis shows undetectable quantities of asbestos. These materials often contain milled asbestos with fibre diameters and lengths too small to be resolved by the PLM and the analysis may yield a false negative result.
Fibrecount and its personnel shall not be liable for any misinformation provided to us by the client regarding these samples or for any misuse or interpretation of information supplied by us. Liability shall extend to provide replicate analysis only. Fibrecount will retain samples for a period of three months or otherwise specified. This report relates only to samples submitted and analyzed. This report may not be reproduced except for in full, without the written approval of this laboratory. Please feel free to contact Fibrecount regarding any questions about these results, this report, or the analytical methods employed.

R.M. Beukema
General manager

Rotterdam: Hongkongstraat 5, 3047 BR, t: +31 10 2088400 *Groningen:* Bankastraat 78, 9715 CJ, 050 5494490
BANK: ABN AMRO 40.45.88.719 - IBAN: NL38 ABNA 0404 5887 19 - BIC: ABNANL 2A - BTW:NL9196857B01 - KVK: 24370016

Certificate of Analysis

confidential

All documents belonging to this report have been checked and authorized by the head of the laboratory or the deputy.

If you might have any doubts about the authenticity of this report, please send the reportnumber to verificatie@fibrecount.com

Appendix C. Evaluation Form

An evaluation form has been included in this appendix. Please complete this form when more asbestos-containing materials are identified.

1. Asbestos Survey Type A			
Surveying Company		ingenieursbureau Oesterbaai BV	
SCA Code		02-D020053.01c	
Report Number		PAM-40067/PAM-40863	
Release Date		02-04-2014 (version 2.0)	
2. Asbestos Survey Type B			
Surveying Company			
SCA Code			
Report Number			
Release Date			
2. Asbestos Survey of Unforeseen Asbestos			
Surveying Company			
SCA Code			
Report Number			
Release Date			
Description of Unforeseen Asbestos			
Description	Location	Quantity	
Asbestos Remover			
Asbestos Removal Company			
SCA Code			
Name			
Release Date		Signature	
Sent to			
By (name)			
Date			
Initials			

Appendix D. Client Liabilities According to Legislation and Regulations

1. General

An asbestos-removal permit must be acquired from the Council. The conditions for asbestos-removal are listed on this permit.

Who is entitled to apply for the permit and who is the permit holder?

1. The owner of the building / structure;
2. A representative of the owner: consultancy;
3. Building tenant.

> Explanation:
> 1. The permit holder is held responsible to the Council as a contact person for the reports and remissions.
> If incomplete and thus not suitable for a demolition permit, the Council will contact the permit holder, who will then contact the Surveying Company. This also applies to asbestos-removal.
> 2. If the work is conflicting to the conditions stated on the permit, the Council will contact the permit holder, and secondly, the asbestos-removal company.

The persons mentioned in points 1 to 3 can be the commissioner for asbestos survey, asbestos-removal, as well as the final assessment. He does not have to be the commissioner for the final inspection. Logically, he can leave this to the removal company.

The Client is the one who:

1. Assigns the survey to a company that has a valid certificate to conduct an asbestos survey;
2. Requests a demolition permit from the Council, specifying the intention to demolish/remove;
3. Assigns the final assessment of the asbestos removal to an accredited laboratory or inspection institution;
4. Assigns asbestos removal to an asbestos removal company that has a valid certificate for the removal of asbestos;
5. Gives notice to the Council at least one week prior to commencement of work. The Client will provide the precise date and times;
6. Receives the waste disposal coupon and the proof of release certificates from the asbestos removal company;
7. Sends copies of the final inspection results to the council within two weeks after execution
8. Receives and pays invoices received for services rendered (1 to 4).

The Client can delegate the actions listed under nos. 1, 2, 3, 5 and 7 to e.g. the asbestos-removal company, but is still be responsible for the correct paperwork (survey report and demolition permit) at the workplace.

2. Asbestos Removal Decree 2005

It is responsibility of the Client to provide the correct paperwork (survey report and demolition permit) at the workplace is listed in Par. 2, Article 3 and 5 and Par. 4, Article 10 of the Asbestos-Removal Act 2005.

The companies to be sub-contracted for asbestos surveying, asbestos-removal and final inspection are only permitted to carry out the work when they hold the legally required certificate, respective accreditation, as stated in art. 4.54a, 4.54d and 4.55a of the Health and Safety Act / Asbestos-Removal Act 2005.

3. Asbestos Survey Report

Drawn from the Asbestos Removal Decree 2005,
Stb 704 d.d. 16-12-2005 and Stb 87 d.d. 20-02-2006

Paragraph 2 – Asbestos survey
Art. 3-1-b:
Subsection b: The one who partially or wholly commissions the demolition or dismantling of (the Client) **…. has an asbestos survey report**

Art. 3-2-b:
Again, the one who removes asbestos themselves or commissions it (the Client) **…. has an asbestos survey report**

Art. 5
The one who does or commissions the work mentioned in paragraph 3 (the Client), supplies, prior to commencement of work, a copy of the survey report to the one who performs the work (the asbestos removal Client).

Conclusion:

Articles 3 and 5 clearly state:

The Client possesses a survey report and provides a copy to the person/s who removes the asbestos. How the Client comes into possession of the report is not stated, however it is the Clients responsibility to obtain this. Also see article 4.54a-1 to 5 and 4.54d-5 (appendix of the Health and Safety Decree)

Appendix Health and Safety Decree

Article 4.54a. Asbestos Survey

1. Before an action as mentioned in article 4.54, first sub-section, part a, b or d, commences, the presence of asbestos or asbestos-containing products as well as chrysotile or crocidolite containing products will be completely surveyed and the results are published in a survey report.
2. The first sub-section applies if employees can or will be exposed to asbestos or asbestos-containing products as well as chrysotle or crocidolite containing products.
3. The survey and the survey report, mentioned in the first sub-section, will be carried out, distinctly drawn up, by a company in the possession of a certificate for asbestos surveying that has been delivered by Our Minister of a certifying institution.
4. A copy of the survey report will be provided to the company, as mentioned in article 4.54d, first sub-section, that performs the action, as mentioned in article 4.54, first sub-section, part a, b or d.
5. The certificate or a copy of it, is present at the workplace and has to be shown to an officer, as mentioned in article 24 of the law, when requested.

Article 4.54d. Asbestos Removal

1. The actions, as mentioned in article 4.54, first sub-section, with exception of the actions as mentioned in article 4.54b, parts b till i, will be performed according to an operating plan drawn up in advance, as mentioned in article 4.55 by a company in possession of a certificate for asbestos removal, delivered by Our Minister or a certifying institution.
2. At a company as mentioned the first sub-section, at least one person as mentioned in the third sub-section is employed.
3. The actions, as mentioned in the first sub-section, are performed under the constant supervision of a person who holds a certificate of competence for the supervision of asbestos removal of crocidolite, which has been delivered by Our Minister or a certifying institution.
4. As far as the actions, mentioned in the first sub-section, are also being done by other persons then the person mentioned in the third sub-section, this person has to be in the possession of a certificate of competence for the supervision of asbestos removal of crocidolite, delivered by Our Minister or a certifying institution.
5. Before the actions commence, as mentioned in the first sub-section, the company, as mentioned in the first sub-section, possesses of a copy of the survey report as mentioned in article 4.54a, first sub-section.
6. The certificates, as mentioned in the first, third and fourth sub-section, or copies of it and the survey report, as mentioned in article 4.54a, first subsection, are present at the workplace and have to be shown to an officer, as mentioned in article 24 of the law, upon request.

Paragraph 4 - Constructions

Article 10: It is forbidden to demolish a construction without, or deviating from, the permit from Mayor and Alderman. A survey report has to be provided for the application for a demolition permit (article 10).The owner of the demolition permit is required to submit a copy of the permit to the demolition company.

Appendix E. SMA-rt

Risk classification according to SMA-rt is/are included in this section appendix.

SMA-rt forms are generated from an official Dutch website (www.asbestinfo.nl) and only available in Dutch. If asbestos removal is scheduled in The Netherlands or by using a Dutch SC-530 certified removal company, SMA-rt forms are obligatory.

SMA-rt 2009-APR Risicoclassificatie

Aangemaakt op 11 februari 2014 om 14h45 (74154455)

Ingenieursbureau Oesterbaai B.V. **SCA-code: 02-D020034.01**

Deze risicoclassificatie maakt onverbrekelijk onderdeel uit van het asbestinventarisatierapport [02-D020034-PAM 40067]; het inventarisatiebureau verklaart dat de invoer geheel overeenkomt met de werkelijke bronsituatie.

Identificatie

Projectcode	PAM 40067
Beschrijving	MV Jan Steen
Bronnaam	Gaskets
Broncode	OB
Bronbeschrijving	Flange gaskets Bilge manifold and Aquamaster cooler line

Productspecificatie

Situatie	A Gebouw/object sanering professioneel
Binnen / buiten	Binnen
Materiaal	Pakking
Product	flenspakking
Hechtgebondenheid	Niet-hechtgebonden
Soorten en % asbest	Chrysotile 10-15%, Chrysotile 15-30%
Analysecertificaatnr.	2014.004190
Productspecificatie	Flenspakkingen
Activiteit	afsteken

Omstandigheden

Aantasting	Niet tot matig aangetast (alleen oppervlakkige beschadigingen)

Risicoklassen

Risicoklasse handeling	2
Protocol handeling	SC-530, risicoklasse 2
Risicoklasse eindcontrole	2
Protocol eindcontrole	NEN 2990

Werkplanelementen

Afscherming werkgebied Containment

Voorafgaand aan de werkzaamheden dient een containment te worden aangelegd.

Persoonlijke bescherming Afhankelijke adembescherming

- Tijdens de werkzaamheden dient een volgelaatsmasker P3 met aangeblazen lucht te worden gedragen.

Beschrijving werkmethode algemeen:

- De asbestverwijderingswerkzaamheden dienen te worden uitgevoerd in overeenstemming met de op het formulier aangegeven specificaties en omstandigheden. Te allen tijde dient vezelemissie zoveel mogelijk te worden beperkt.
- Voorafgaand aan de werkzaamheden dient een compleet werkplan te worden opgesteld conform de SC-530 Bijlage G (Werkplan).
- De werkzaamheden dienen te worden uitgevoerd.

Beschrijving eindcontrole:

Er dient een eindcontrole door een door RvA geaccrediteerde (ISO 17020) inspectie-instelling te worden uitgevoerd volgens NEN 2990, onderdeel visuele inspectie en onderdeel luchtmetingen.

Appendix F. Status of the previous ACMs listed, to be included for removal.

Source/sample ID Previous report PAM: 22867 16/06/2011	Description	Current status as per: 04/02/2014	Removal remarks: Risk classification (RC) Asbestos type.
S2/135454/MM2	Gasket FW system	not removed	RC 2, chrysotile 30-60%
S3/135455/MM3	Gasket Bilge water system	not removed	RC 2, chrysotile 30-60%
S5/135457/MM5	Gasket sludge system	not removed	RC 2, chrysotile 30-60%
S6/135458/MM6	Gasket Lub Oil level gauge	not removed	RC 1, chrysotile 30-60%
S7/135459/MM7	Gasket Lub Oil system	not removed	RC 2, chrysotile 30-60%
S8/135460/MM8	Gasket Heavy fuel system	not removed	RC 2, chrysotile 30-60%
S10/135464/MM10	Gasket Heavy fuel system	not removed	RC 2, chrysotile 30-60%
S11/135465/MM11	Gasket FIFI system workshop	not removed	RC 2, chrysotile 30-60%
S12/135466/MM12	Brake lining PS winch#6.	not removed	RC 2, chrysotile 10-15%
S13/135469/MM13	Brake lining STB winch#5	not removed	RC 2, chrysotile 10-15%
S14/135472/MM14	Brake lining winch#4	not removed	RC 2, chrysotile 10-15%
S15/135475/MM15	Gaskets hydraulic oil system	not removed	RC 2, chrysotile 30-60%
S18/135574/MM18	Gaskets hydraulic oil system	not removed	RC 2, chrysotile 30-60%
S19/135575/MM19	Gaskets hydraulic oil system	not removed	RC 2, chrysotile 30-60%
S20/135576/MM20	Gaskets hydraulic oil system	not removed	RC 2, chrysotile 30-60%
S24/135580/MM24	Loose gasket “Ferolite 333”	not removed	RC 1, chrysotile 30-60%
S26/135582/MM26	Loose gasket “Tesnit 10”	not removed	RC 1, chrysotile 30-60%
S30/135586/MM30	Gasket Black water system	not removed	RC 2, chrysotile 5-10%
S31/135587/MM31	Gasket Diesel Oil tank	not removed	RC 2, chrysotile 30-60%
S32/135588/MM32	Gasket hot water system	not removed	RC 2, chrysotile 30-60%
S34/135592/MM34	Gasket pressured air system	not removed	RC 2, chrysotile 30-60%
S35/135593/MM35	Knife fuses in electrical store	not removed	RC 1, chrysotile 15-30%
S39/135608/MM39	Sealant cable transit	not removed	RC 2, chrysotile 2-5%
S41/135626/MM41	Gasket sewage system	not removed	RC 2, chrysotile 30-60%
S42/135644/MM42	Air-vent gasket	not removed	RC 2, chrysotile 30-60%
S43/135651/MM43	Gasket AC system	not removed	RC 2, chrysotile 30-60%

Asbestos Survey TYPE A

FFPV Jan Steen

Graanweg 18, Moerdijk

Project Number	**: PAM-22867**
Location	: FFPV Jan Steen, vessel ID (EVA): 457549
Survey Coordinator	: Mrs. C. van der Hoek
Version	: 1.0
Client	: Van Oord Dredging and Marine Contractors bv Technical Department
Contact	: Mr. E. Wielaart
Date	: 16th of June 2011

certificaatnummer: AO-067/01 registratienummer: 02-D020034.01 Hongkongstraat 5 - 3047 BR Rotterdam / 010 208 84 44

Foreword

Report on Asbestos Survey TYPE A

This Asbestos Survey TYPE A Report was drawn up in accordance with SC-540 carried out by Oesterbaai engineers on behalf of Van Oord Dredging and Marine Contractors B.V. The survey took place at FFPV Jan Steen, at the time of the inspection located at the Graanweg 18 in Moerdijk.

This asbestos survey TYPE A was carried out in accordance with the SC-540 standard. This report meets all applicable demolition and/or conversion permit application requirements.

On behalf of Oesterbaai Engineers b.v.:

Mr. ir. G.J.P.L.C. Gribnau	Mrs. M.C.A. van der Hoek
General Director	Survey Coordinator

Rotterdam, 16th of June 2011

List of Parties

Client:

Name:	Van Oord Dredging and Marine Contractors bv
	Technical Department
Address:	Watermanweg 64
Postal code and City:	3067 GG ROTTERDAM
Contact:	Mr. E. Wielaart
Telephone Number:	010 – 447 84 44

Project location:

Vessel:	FFPV Jan Steen
Address:	Graanweg 18
	4782 PP Moerdijk
IMO Number:	8505707
Flag State:	The Netherlands

Contractor:

Name:	ingenieursbureau Oesterbaai b.v.
Address:	Hongkongstraat 5 - 3047 BR Rotterdam
Telephone Number:	010 – 208 84 44
Fax Number:	010 – 208 84 33
Project Number:	PAM-22867
Survey Period:	13-05-2011
Project Coordinator:	Mrs. D. dos Santos Encarnacao
Asbestos Surveyor:	Mr. R.B. Stoel
Version:	1.0

Laboratory Work:

Company:	Fibrecount Environmental Control B.V.

Summary

This asbestos survey was carried out in accordance with the SC-540 guidelines:

1. consultation between client and manager
2. desk research and design of inspection plan
3. visual inspection
4. sampling and analysis results

First, consultations with the manager were held as often as possible. Subsequently, desk research was carried out on location with blueprints and specifications for inspection provided by the client. Research details are recorded in paragraph 2.2 of this report. An inspection plan (project file) was then drawn up. The visual inspection on site was carried out according to this inspection plan.

Wherever accessible, samples of the materials suspected of containing asbestos were taken for testing of asbestos content. These samples were analysed by an accredited laboratory. In the analysis certificates from the laboratory, shown in the appendices, the types of asbestos-containing material were determined. These types determine the method of material removal. During this inspection, small tools were used in accordance with the SC-540. In cases where sample-taking was deemed impossible, the techniques used were recorded by document referral or visual inspection.

The table on the following page contains a summary of the asbestos found and its properties.
The photographs are shown in paragraph 2.3.

Material visually suspected as asbestos-containing, but without possible proof of asbestos content, are also recorded in this table.

Source/ID	Description	Location	Quantity (±)[1]	Sample ID/ Serial no.	Analysis	Risk Classification
2/135454	Gasket (cardboard)	Engine room, tanktop deck	undetermined	88882/MM2	Chrysotile 30-60%	2
3/135455	Gasket (cardboard)	Engine room, tanktop	undetermined	88883/MM3	Chrysotile 30-60%	2
5/135457	Gasket (cardboard)	Engine room, tanktop	undetermined	88885/MM5	Chrysotile 30-60%	2
6/135458	Level gauges (cardboard)	Engine room, tanktop	undetermined	88886/MM6	Chrysotile 30-60%	1
7/135459	Gasket (cardboard)	Engine room, tanktop	undetermined	88887/MM7	Chrysotile 30-60%	2
8/135460	Gasket (cardboard)	Engine room, tanktop	undetermined	88888/MM8	Chrysotile 30-60%	2
10/135464	Gasket (cardboard)	Engine room, tanktop	undetermined	88891/MM10	Chrysotile 30-60%	2
11/135465	Gasket (cardboard)	Workshop, tanktop	undetermined	88892/MM11	Chrysotile 30-60%	2
12/135466	Brake pad (friction material)	Winch room, tanktop	2 pcs	88893/MM12	Chrysotile 5-10%	2
13/135469	Brake pad (friction material)	Winch room, tanktop	2 pcs	88896/MM13	Chrysotile 5-10%	2
14/135472	Brake pad (friction material)	Winch room, tanktop	2 pcs	88899/MM14	Chrysotile 5-10%	2
15/135475	Gasket (cardboard)	workshop, tanktop	undetermined	88901/MM15	Chrysotile 30-60%	2
18/135574	Gasket (cardboard)	Hydraulic room, tanktop	undetermined	88904/MM18	Chrysotile 30-60%	2
19/135575	Gasket (cardboard)	Hydraulic room, tanktop	undetermined	88905/MM19	Chrysotile 15-30%	2
20/135576	Gasket (cardboard)	Hydraulic room, tanktop	undetermined	88906/MM20	Chrysotile 15-30%	2
24/135580	Gasket (cardboard)	Foreward engine room, tanktop	undetermined	88910/MM24	Chrysotile 30-60%	1

Source/ID	Description	Location	Quantity (±)[1]	Sample ID/ Serial no.	Analysis	Risk Classification
26/135582	Gasket (cardboard)	Foreward engine room, tanktop	undetermined	88912/MM26	Chrysotile 30-60%	1
30/135586	Gasket (cardboard)	Foreward engine room tanktop	undetermined	88916/MM30	Chrysotile 5-10%	2
31/135587	Gasket (cardboard)	Bow thruster room tanktop	undetermined	88917/MM31	Chrysotile 30-60%	2
32/135588	Gasket (cardboard)	Bow thruster room tanktop	undetermined	88918/MM32	Chrysotile 30-60%	2
34/135592	Gasket (cardboard)	Storage space tanktop	undetermined	88921/MM34	Chrysotile 30-60%	2
35/135593	Knife fuse (parts)	Storage space, tanktop	undetermined	88922/MM35	Chrysotile 15-30%	1
39/135608	Seal (sealant)	Outside D-Deck, deck (outside)	undetermined	88926/MM39	Chrysotile 2-5%	2
41/135626	Gasket (cardboard)	Outside C-Deck, deck (outside)	undetermined	88930/MM41	Chrysotile 30-60%	2
42/135644	Gasket (cardboard)	Outside C-Deck, deck (outside)	undetermined	88934/MM42	Chrysotile 30-60%	2
43/135651	Gasket (cardboard)	AC room, D-Deck	undetermined	88935/MM43	Chrysotile 30-60%	2

Table 1: Result Overview

The locations of the asbestos-containing material, and other materials suspected of containing asbestos, are indicated in the floor plans in the appendices. Photographs locations and sampling points are also indicated.

This survey report should be revised when asbestos removal is scheduled more than 3 years after the survey report date. Situation changes in the object/constructions should be reviewed regarding the asbestos containing materials within this object/construction. All changes are to be registered and added in a new version of the survey report before actual removal activities can take place. A revised version of the report is also required in case no changes are found.

Remarks:

- Due to the fact that the ship inspected was in use during the survey, non-destructive survey techniques were used whenever possible. For example, spaces enclosed by permanent walls/ floors, finished with a permanent fix (e.g., glued coverings such as vinyl or linoleum) and spaces between sealed-off ceilings have been excluded from the survey;
- We, therefore, strongly recommend carrying out additional destructive spot surveys shortly before start of demolition and/or conversion of the vessel on locations where no inspection has yet taken place.
- [1]) quantities of asbestos-containing materials found during the survey are on-the-spot estimates and thus unfit for planning and/or calculation purposes.
- No inspection was carried out behind asbestos-containing items. These cannot be removed without the use of proper personal protection equipment.
- A large variety of gaskets used can be seen throughout the ship's systems. Oesterbaai's advice in this: consider and treat gaskets asbestos containing until proven asbestos free. In this report, sample results of a large number of gasket types and brands are shown to help identifying gaskets. Possible undefined brands and types are to be considered and treated as asbestos containing.
- On board the vessel many different brands and types of gasket material are stored and used. A lot of these materials have been used in between the year of construction and present time. To determine the exact amount of asbestos containing or asbestos free gaskets within the different systems onboard is nearly impossible as of this reason; therefore no amounts of gaskets have been noted in this report.

Table of Contents

Foreword I
List of Parties II
Summary III
1. Introduction 1
1.1 Oesterbaai engineers 1
1.2 Asbestos in general 1
1.3 Relevant Legislation 3
2. Investigation and results 4
2.1 Investigation method 4
2.2 Results Client/Manager Consultation and Desk Research 4
2.3 Visual Inspection & Sample Analysis Results 5
3. Asbestos Survey Restrictions 49
3.1 General Restrictions of Asbestos Survey 49
3.2 Restrictions Due to Constructional Inaccessibility 49
3.3 Locations Not Inspected for Asbestos 49
4. Asbestos Removal Proposal 51
4.1 Outsourcing Removal 51
4.2 Asbestos Remission Techniques 51
4.3 Advice for Remission of the Identified Asbestos Sources 52
4.4 Risk Classification 55
5. Safety and Health 58
5.1 Asbestos and Health Hazards 58
5.2 Calamities 59
6. Conclusions and Recommendations 60
Appendix A. Locations of the various sources 63
Appendix B. Certificates of the sample analysis 69
Appendix C. Evaluation Form 70
Appendix D. Client Liabilities According to Legislation and Regulations 72
Appendix E. SMA-rt 75

1. Introduction

1.1 Oesterbaai engineers

This document is an asbestos survey TYPE A report. All work was carried out in accordance with the SC-540 statutory requirements. This report complies with these statutory requirements. Companies are authorised to produce such reports when they hold a valid SC-540 certificate for asbestos surveys.

The asbestos survey must be performed professionally to secure the safety of the surveyor and anyone in the direct vicinity. The employees of ingenieursbureau Oesterbaai are aware of these health hazards. The ingenieursbureau Oesterbaai surveys are carried out only by professional, experienced individuals holding, at the very minimum, a DTA certificate.

This report has been generated with the utmost care. Should it not meet expectations or should there be any queries or comments, please contact us.

1.2 Asbestos in general

Asbestos is a Fibrous mineral material that was widely used in the past, mainly in construction. The main, positive characteristics of asbestos are its non-flammability, excellent damage-resistance, moisture-resistance and low price.

Asbestos-containing materials are always composites (i.e., composed of different materials). Because asbestos fibres are not naturally bound, a binding agent is necessary, e.g. cement. Asbestos is almost always used as an additive. The lifespan of the *composite material* created in most cases is determined by the degree of binding agent, because asbestos itself is indestructible.

A reduction in binding capacity is also identified as a reduction in the *adhesive bonding* of asbestos fibres. Fibre emission can increase when the adhesive bonding of the material decreases. This may be a health hazard.

Working with asbestos or asbestos-containing materials has been prohibited for quite some time (with a few exceptions). Asbestos exposure becomes a health concern when high concentrations of asbestos fibers are inhaled over a long period of time (Please find a detailed explanation in Chapter Six.)

Terminology

Below is a brief explanation of commonly used terms.

Asbestos	The Fibrous silicates actinolite, amosite, anthofyllite, Chrysotile, crocidolite and tremolite, and products in which these silicates are processed.
Asbestos analysis	The analysis of a material or air sample for the presence, type and percentage /concentration of asbestos, carried out by an accredited laboratory.
Asbestos survey	There are three types of surveys which can be carried out on the SC-540 standard: TYPE A, TYPE B and TYPE O.
Containment	The structure where the remission will be carried out will be cordoned off. A legally determined level of suppression is maintained to prevent emission of asbestos fibres to the environment.
DTA Certificate	A DTA (Expert Supervisor Asbestos Removal) is an expert who has completed “DTA” training, with a final exam, at a training institute approved by the Ministry of Social Affairs and Employment.
Sampling	Random samples are taken from a specified batch in such a way that they represent the properties of that batch.
Risk Classification	Classification of demolition or other activities involving asbestos and/or asbestos-containing products, asbestos-contaminated material or asbestos-contaminated building elements under one of the three risk classifications, in accordance with the amended Labour Decree concerning asbestos dated 7 July 2006 (SC-540 lit. 1). The risk classification is based on the level of exposure to asbestos fibres that can be inhaled by workers and surroundings in accordance with the methodology described in the TNO report R 2004/523.
SC-540	Certification model drawn up by CCvD Asbest. Tested on the legislation and regulation by the Ministry of Social Affairs and Employment.

1.3 Relevant Legislation

Below is a summary of relevant legislations and regulations:

Relevant Legislation:	Status:
[1] Labour Conditions Act	Normative
[2] Decision on 7 July 2006 to amend the Health and Safety Act decree (implementation of Revision code no. 2003/18/EG) Statute no. 348, July 2006	Normative
[3] Statutory reference to SC-540 in the Labour Conditions Act. Please refer to related publication on www.ascert.nl.	Normative
[4] Asbestos Removal Decree 2005. Statute 2005 704	Normative
[5] Amendment of policies in the Labour Conditions Act, State Publication 7 August 2006, no. 51	Normative
[6] Products Decree Asbestos	Normative
[7] Report TNO-MEP R 2004/523 Risk-oriented classification of asbestos-related activities	Informative
[8] Management Convenant Ministry of Social Affairs and Employment and Foundation of Asbestos Certification, 8 March 2006. State Courant, 7 August 2006, no. 151/page 7	Normative
[9] Ministry of Social Affairs and Employment model for indication and inspection of certification institution.	Normative
[10] Information magazine Plan of Action Asbestos Fire 2006. VROM-inspection. Available on www.vrom.nl	Informative
[11] National Execution Methods of Asbestos Removal Decree 2005, Ministry of Public Health, Welfare and Sport: and LOM. Assistance to communities. Senter Novem June 2007.	Informative
[12] Future view Asbestos field; SCA 2005	Informative
[13] NEN 2990 Final inspection after removal	Normative
[14] NEN 2991 Risk assessment in non-demolition situations	Normative
[15] NEN 5896 Clause of asbestos in building and construction materials	Normative
[16] NEN 5707 Asbestos in soil	Informative
[17] Validation protocol classification risk levels with asbestos removal	Normative
[18] NEN-EN ISO 17020	Informative
[19] NTA Asbestos in water soils	Informative

2. Investigation and results

2.1 Investigation method

Asbestos Survey TYPE A is carried out systematically. First, consultation between client and contractor took place whenever possible. Afterwards, desk research was carried out using blueprints and building specifications, if provided by the client, from which an inspection plan was drawn up. Subsequently, the site was inspected systematically for the presence of materials suspected of containing asbestos, according to the previously drafted inspection plan.

During the inspections the following elements, whenever possible, are visually inspected:

- Technical installations;
- Fire resistant constructions and facilities;
- Parts with a decorative or finishing purpose;
- Damming constructions and facilities;
- During fabrication of materials;
- Presence of asbestos waste.

In this process, samples are taken of materials suspected of containing asbestos. These samples are submitted for analysis at an accredited laboratory.

2.2 Results Client/Manager Consultation and Desk Research

Consultation with manager	Manager	Result
☒ Yes	Captain	Possible presence of asbestos containing gaskets onboard. Approximately 10 years ago, new decks were installed onboard.
☐ No	Reason:	

Desk Research	Drawing Numbers	Result
☒ Yes	1207-05-A16	General arrangement, no relevant information mentioned
☐ No	Reason:	

2.3 Visual Inspection & Sample Analysis Results

During visual inspection, the materials suspected of containing asbestos (which came up during inspection) were examined. They were also tested for possible secondary contamination; for example, remnants of asbestos waste that were left behind during previously performed asbestos remission.

A visual inspection was then carried out for other materials suspected of containing asbestos.
In order to be 100% certain that a suspicious material contains asbestos, an analysis of a sample of that material must be carried out by a specialised laboratory. If concluded that a material is asbestos-containing, other than via laboratory analysis, it is indicated as follows: “Intechnium asbestos manual,” “visual observation,” or “material stamp with year figure.” If no sample is taken, because sampling is hazardous to the inspector(s), this is specified as: “chimney on roof” or “panelling at considerable height.”

For the sake of clarity, photographs and detailed specifications of these materials are included in this paragraph. There are also photographs of the materials inspected, suspected of containing asbestos, which turned out NOT to be asbestos-containing. These materials are also included to avoid confusion during asbestos removal work. The numbers of the locations correspond to the numbers on the floor plan and the photographs.

The risk classification of every asbestos source has to be determined for remediation, as stated in the Labour Conditions Act. The following publications were used as guidance for determining risk classification: an Augustus 2006 publication from the Ministry of Social Affairs and Employment, and the TNO-report, R 2004/523 “Risk oriented classification of asbestos-related activities.”

Source 1, Gasket (cardboard)	**Source ID (EVA): 135452**

Sample ID/Serial no.:		88881/MM1
Location	:	Aquamaster room, tanktop deck
Quantity (±)[1]	:	Undetermined
Securing Method	:	Clamped in between flanges
Degree of binding	:	Friable
Surface structure	:	Fibrous
Condition	:	Slightly damaged
Risk classification	:	N/A
Recommendation	:	N/A

Asbestos	**Percentage**
no asbestos	< 0,1% (none)
according to laboratory analysis (PLM)	

Remarks:

This concerns an asbestosfree gasket of the cooling water system, aquamaster room.

Photo: 1, Gasket (cardboard)

Source 2, Gasket (cardboard)	Source ID (EVA): 135454

Sample ID/Serial no.:		88882/MM2
Location	:	Engineroom, tanktop deck
Quantity (±)[1]	:	Undetermined
Securing Method	:	Clamped in between flanges
Degree of binding	:	Friable
Surface structure	:	Fibrous
Condition	:	Slightly damaged
Risk classification	:	2
Recommendation	:	No immediate risk. Control plan recommended.

Asbestos	Percentage
Chrysotile	30-60%
according to laboratory analysis (PLM)	

Remarks:

This concerns a gasket of the fresh water system, ER tanktop.

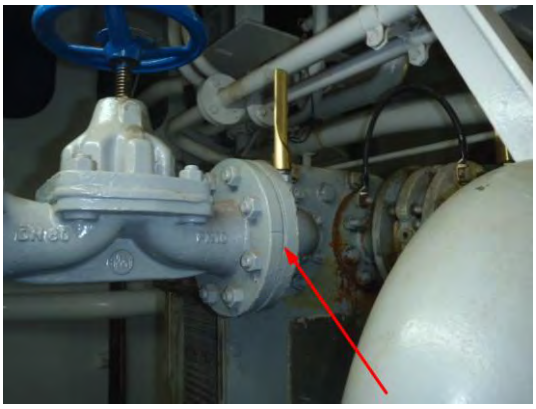


Photo: 2, Gasket (cardboard)

Source 3, Gasket (cardboard)	Source ID (EVA): 135455

Sample ID/Serial no.:		88883/MM3
Location	:	Engine room, tanktop
Quantity (±)[1]	:	Undetermined
Securing Method	:	Clamped in between flanges
Degree of binding	:	Friable
Surface structure	:	Fibrous
Condition	:	Slightly damaged
Risk classification	:	2
Recommendation	:	No immediate risk. Control plan recommended.

Asbestos	Percentage
Chrysotile	30-60%
according to laboratory analysis (PLM)	

Remarks:

This concerns a gasket of the bilge water system, ER tanktop.

Photo: 3, Gasket (cardboard)

Source 4, Gasket (cardboard)	Source ID (EVA): 135456

Sample ID/Serial no.:	88884/MM4
Location :	Engine room, tanktop
Quantity (±)[1] :	Undetermined
Securing Method :	Clamped in between flanges
Degree of binding :	Friable
Surface structure :	Fibrous
Condition :	Slightly damaged
Risk classification :	N/A
Recommendation :	N/A

Asbestos	Percentage
no asbestos	< 0,1% (none)
according to laboratory analysis (PLM)	

Remarks:

This concens a gasket of the cooling water system, ER tanktop.

Photo: 4, Gasket (cardboard)

Source 5, Gasket (cardboard)	**Source ID (EVA): 135457**

Sample ID/Serial no.:		88885/MM5
Location	:	Engine room, tanktop
Quantity (±)[1]	:	Undetermined
Securing Method	:	Clamped in between flanges
Degree of binding	:	Friable
Surface structure	:	Fibrous
Condition	:	Slightly damaged
Risk classification	:	2
Recommendation	:	No immediate risk. Control plan recommended.

Asbestos	**Percentage**
Chrysotile	30-60%
according to laboratory analysis (PLM)	

Remarks:

This concerns a gasket of the sludge system, ER tanktop.

Photo: 5, Gasket (cardboard)

Source 6, level gauge (cardboard)	Source ID (EVA): 135458

Sample ID/Serial no.:		88886/MM6
Location	:	Engine room, tanktop
Quantity (±)[1]	:	Undetermined
Securing Method	:	Clamped in between flanges
Degree of binding	:	Friable
Surface structure	:	Fibrous
Condition	:	Slightly damaged
Risk classification	:	1
Recommendation	:	No immediate risk. Control plan recommended.

Asbestos	Percentage
Chrysotile	30-60%
according to laboratory analysis (PLM)	

Remarks:

This concerns level gauges of the lub oil tank which have asbestos containing gasket material in between the glass/steel frame work. This type of level gauge is present throughout the vessel.

Photo: 6, Gasket (cardboard)

Source 7, Gasket (cardboard)	Source ID (EVA): 135459

Sample ID/Serial no.:		88887/MM7
Location	:	Engine room, tanktop
Quantity (±)[1]	:	Undetermined
Securing Method	:	Clamped in between flanges
Degree of binding	:	Friable
Surface structure	:	Fibrous
Condition	:	Slightly damaged
Risk classification	:	2
Recommendation	:	No immediate risk. Control plan recommended.

Asbestos	Percentage
Chrysotile	30-60%
according to laboratory analysis (PLM)	

Remarks:

This concerns a gasket of the lube oil system, ER tanktop.

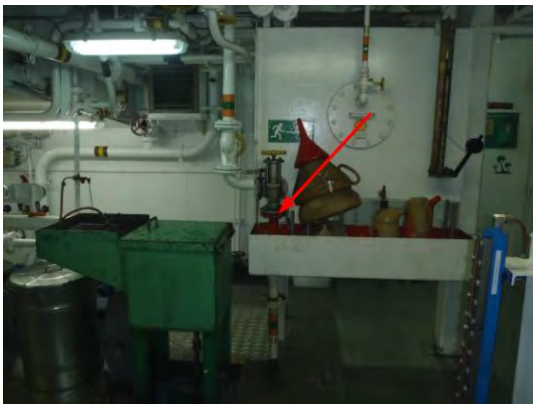


Photo: 7, Gasket (cardboard)

Source 8, Gasket (cardboard)	Source ID (EVA): 135460

Sample ID/Serial no.:	88888/MM8
Location :	Engine room, tanktop
Quantity (±)[1] :	Undetermined
Securing Method :	Clamped in between flanges
Degree of binding :	Friable
Surface structure :	Fibrous
Condition :	Slightly damaged
Risk classification :	2
Recommendation :	No immediate risk. Control plan recommended.

Asbestos	Percentage
Chrysotile	30-60%
according to laboratory analysis (PLM)	

Remarks:

This concerns a gasket of the heavy fuel system, ER tanktop.

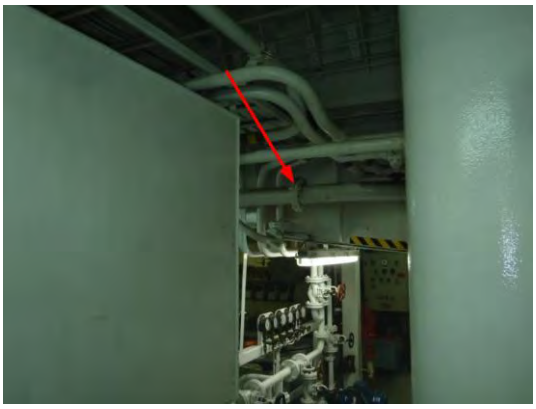


Photo: 8, Gasket (cardboard)

Source 9, Gasket (cardboard)	**Source ID (EVA): 135463**

Sample ID/Serial no.:		88890/MM9
Location	:	Engine room, tanktop
Quantity (±)[1]	:	Undetermined
Securing Method	:	Clamped in between flanges
Degree of binding	:	Friable
Surface structure	:	Fibrous
Condition	:	Slightly damaged
Risk classification	:	N/A
Recommendation	:	N/A

Asbestos	**Percentage**
no asbestos	< 0,1% (none)
according to laboratory analysis (PLM)	

Remarks:

This concerns a gasket in between the flanges of an air duct, ER tanktop.

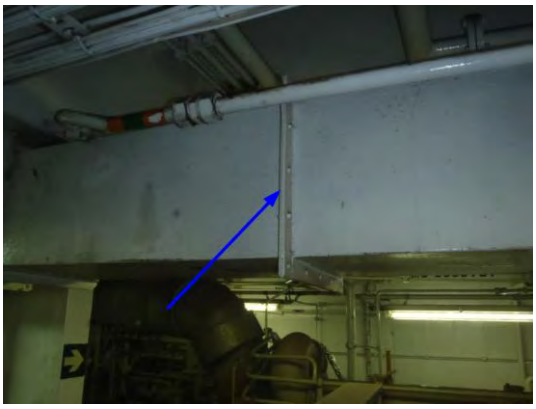


Photo: 9, Gasket (cardboard)

Source 10, Gasket (cardboard)	Source ID (EVA): 135464

Sample ID/Serial no.:		88891/MM10
Location	:	Engine room, tanktop
Quantity (±)[1]	:	Undetermined
Securing Method	:	Clamped in between flanges
Degree of binding	:	Friable
Surface structure	:	Fibrous
Condition	:	Slightly damaged
Risk classification	:	2
Recommendation	:	No immediate risk. Control plan recommended.

Asbestos	Percentage
Chrysotile	30-60%
according to laboratory analysis (PLM)	

Remarks:

This concerns a gasket of the heavy fuel system, ER tanktop.

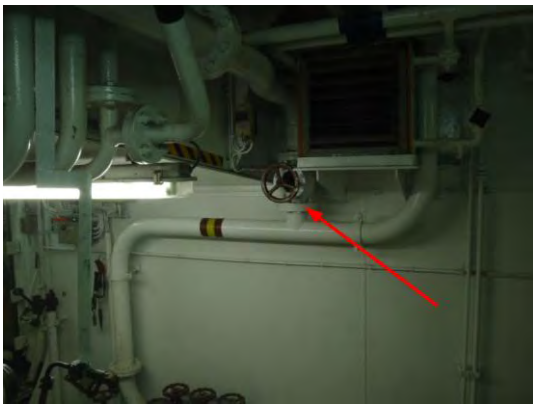


Photo: 10, Gasket (cardboard)

Source 11, Gasket (cardboard)	Source ID (EVA): 135465

Sample ID/Serial no.:		88892/MM11
Location	:	Workshop, tanktop
Quantity (±)[1]	:	Undetermined
Securing Method	:	Clamped in between flanges
Degree of binding	:	Friable
Surface structure	:	Fibrous
Condition	:	Slightly damaged
Risk classification	:	2
Recommendation	:	No immediate risk. Control plan recommended.

Asbestos	Percentage
Chrysotile	30-60%
according to laboratory analysis (PLM)	

Remarks:

This concerns a gasket in the FiFi system, workshop.

Photo: 11, Gasket (cardboard)

Source 12, Brake pad (friction material)	Source ID (EVA): 135466

Sample ID/Serial no.:		88893/MM12
Location	:	Winch room, tanktop
Quantity (±)[1]	:	2 pcs at this winch
Securing Method	:	Clamped
Degree of binding	:	Non friable
Surface structure	:	Non fibrous
Condition	:	Slightly damaged
Risk classification	:	2
Recommendation	:	No direct risk, removal recommended.

Asbestos	Percentage
Chrysotile	5-10%
according to laboratory analysis (PLM)	

Remarks:

This concerns the brake lining of aft PS winch #6. No dust survey was done to determine possible contaminations within the winch room yet.

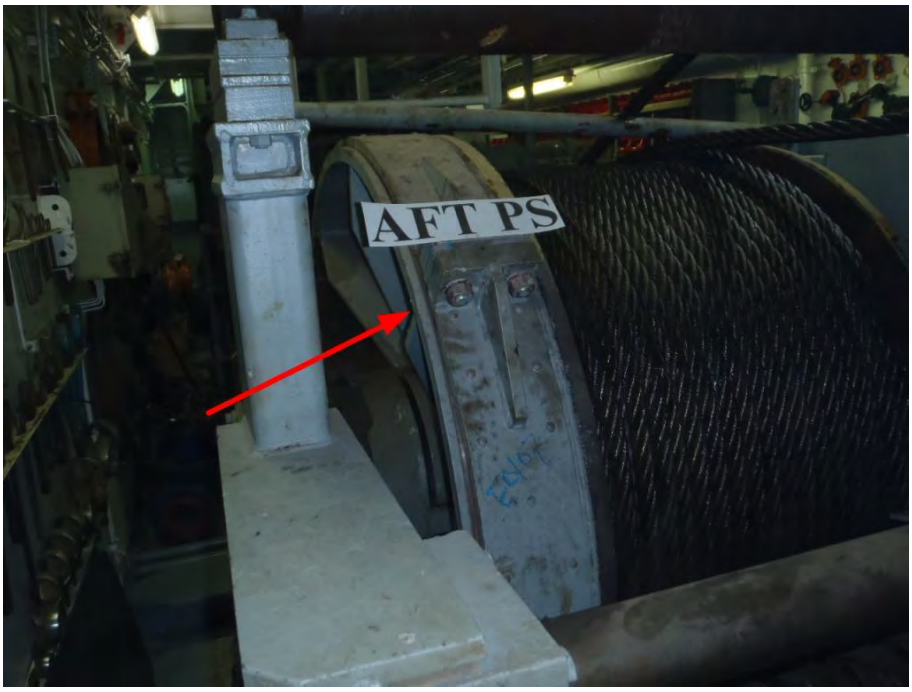


Photo: 12, Brake pad (friction material)

Source 13, Brake pad (friction material)	Source ID (EVA): 135469

Sample ID/Serial no.:		88896/MM13
Location	:	Winch room, tanktop
Quantity (±)[1]	:	2 pcs at this winch
Securing Method	:	Clamped
Degree of binding	:	Non friable
Surface structure	:	Non fibrous
Condition	:	Slightly damaged
Risk classification	:	2
Recommendation	:	No direct risk, removal recommended.

Asbestos	Percentage
Chrysotile	5-10%
according to laboratory analysis (PLM)	

Remarks:

This concerns the brake linings of the aft SB winch #5. No dust survey was done to determine possible contaminations within the winch room yet.

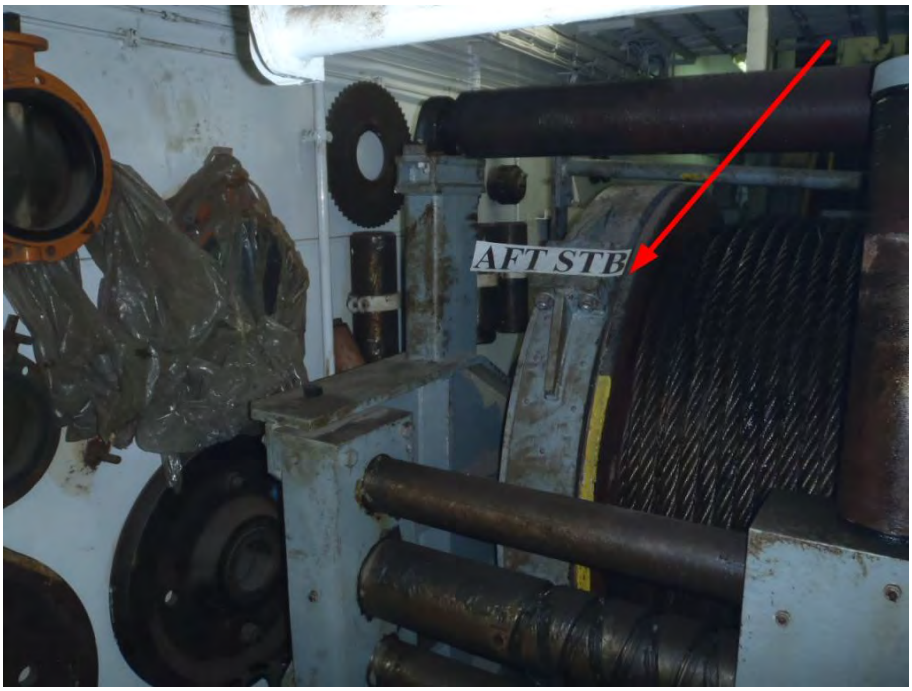


Photo: 13, Brake pad (friction material)

Source 14, Brake pad (friction material)	Source ID (EVA): 135472

Sample ID/Serial no.:	88899/MM14
Location :	Winch room, tanktop
Quantity (±)[1] :	2 pcs at this winch
Securing Method :	Clamped
Degree of binding :	Non friable
Surface structure :	Non fibrous
Condition :	Slightly damaged
Risk classification :	2
Recommendation :	No immediate risk.

Asbestos	Percentage
Chrysotile	5-10%
according to laboratory analysis (PLM)	

Remarks:

This concerns brake lining, winch 4. No dust survey was done to determine possible contaminations within the winch room yet.

Photo: 14, Brake pad (friction material)

Source 15, Gasket (cardboard)	Source ID (EVA): 135475

Sample ID/Serial no.:		88901/MM15
Location	:	Workshop, tanktop
Quantity (±)[1]	:	Undetermined
Securing Method	:	Clamped in between flanges
Degree of binding	:	Friable
Surface structure	:	Fibrous
Condition	:	Slightly damaged
Risk classification	:	2
Recommendation	:	No immediate risk. Control plan recommended.

Asbestos	Percentage
Chrysotile	30-60%
according to laboratory analysis (PLM)	

Remarks:

This concerns gasket hydraulic oil system, workshop.

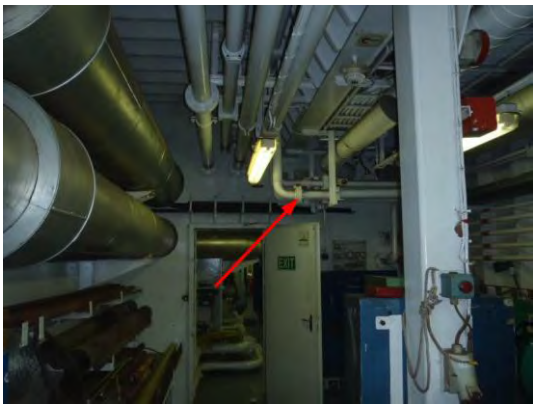


Photo: 15, Gasket (cardboard)

Source 16, Seal (cord)	Source ID (EVA): 135479

Sample ID/Serial no.:		88902/MM16
Location	:	Workshop, tanktop
Quantity (±)[1]	:	Undetermined
Securing Method	:	Loose
Degree of binding	:	Friable
Surface structure	:	Fibrous
Condition	:	Slightly damaged
Risk classification	:	N/A
Recommendation	:	N/A

Asbestos	Percentage
no asbestos	< 0,1% (none)
according to laboratory analysis (PLM)	

Remarks:

This concerns black cord seal in spare parts cupboard, workshop.

Photo: 16, Seal (cord)

Source 17, Seal (cord)	Source ID (EVA): 135481

Sample ID/Serial no.:		88903/MM17
Location	:	Workshop, tanktop
Quantity (±)[1]	:	Undetermined
Securing Method	:	Loose
Degree of binding	:	Friable
Surface structure	:	Fibrous
Condition	:	Slightly damaged
Risk classification	:	N/A
Recommendation	:	N/A

Asbestos	Percentage
no asbestos	< 0,1% (none)
according to laboratory analysis (PLM)	

Remarks:

This concerns white cord seal in spare parts cupboard, workshop.

Photo: 17, Seal (cord)

Source 18, Gasket (cardboard)	Source ID (EVA): 135574

Sample ID/Serial no.:		88904/MM18
Location	:	Hydraulic room, tanktop
Quantity (±)[1]	:	Undetermined
Securing Method	:	Clamped in between flanges
Degree of binding	:	Friable
Surface structure	:	Fibrous
Condition	:	Slightly damaged
Risk classification	:	2
Recommendation	:	No immediate risk. Control plan recommended.

Asbestos	Percentage
Chrysotile	30-60%
according to laboratory analysis (PLM)	

Remarks:

This concerns gasket hydraulic oil system, hydraulic room.

Photo: 18, Gasket (cardboard)

Source 19, Gasket (cardboard)	Source ID (EVA): 135575

Sample ID/Serial no.:		88905/MM19
Location	:	Hydraulic room, tanktop
Quantity (±)[1]	:	Undetermined
Securing Method	:	Clamped in between flanges
Degree of binding	:	Friable
Surface structure	:	Fibrous
Condition	:	Slightly damaged
Risk classification	:	2
Recommendation	:	No immediate risk. Control plan recommended.

Asbestos	Percentage
Chrysotile	15-30%
according to laboratory analysis (PLM)	

Remarks:

This concerns gasket hydraulic oil system, hydraulic room.

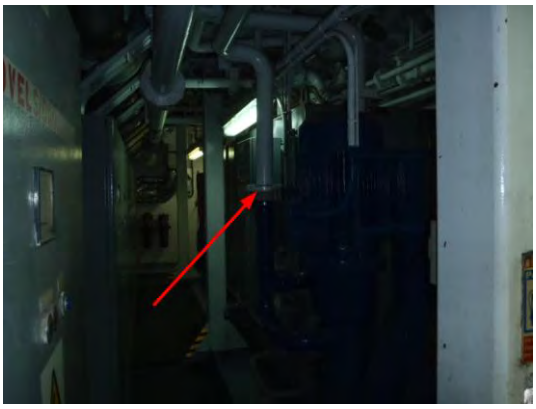


Photo: 19, Gasket (cardboard)

Source 20, Gasket (cardboard)	Source ID (EVA): 135576

Sample ID/Serial no.:		88906/MM20
Location	:	Hydraulic room, tanktop
Quantity (±)[1]	:	Undetermined
Securing Method	:	Clamped in between flanges
Degree of binding	:	Friable
Surface structure	:	Fibrous
Condition	:	Slightly damaged
Risk classification	:	2
Recommendation	:	No immediate risk. Control plan recommended.

Asbestos	Percentage
Chrysotile	15-30%
according to laboratory analysis (PLM)	

Remarks:

This concerns gasket hydraulic oil system, hydraulic room.

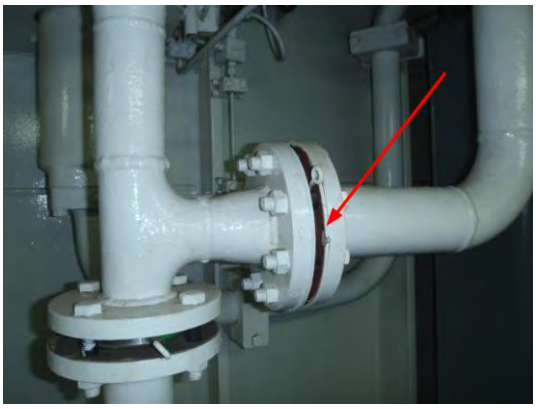


Photo: 20, Gasket (cardboard)

Source 21, Insulation (insulation material)	Source ID (EVA): 135577

Sample ID/Serial no.:		88907/MM21
Location	:	Hydraulic room, tanktop
Quantity (±)[1]	:	Undetermined
Securing Method	:	Clamped
Degree of binding	:	Friable
Surface structure	:	Fibrous
Condition	:	Slightly damaged
Risk classification	:	N/A
Recommendation	:	N/A

Asbestos	Percentage
no asbestos	< 0,1% (none)
according to laboratory analysis (PLM)	

Remarks:

This concerns insulation of switchboard cooling hoses.

Photo: 21, Insulation (insulation material)

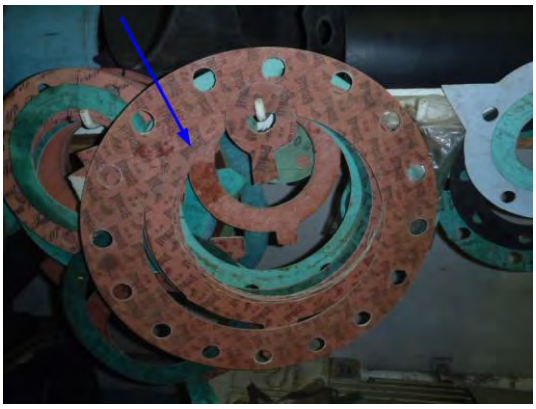
Source 22, Gasket (cardboard)	Source ID (EVA): 135578

Sample ID/Serial no.:		88908/MM22
Location	:	Unknown
Quantity (±)[1]	:	Undetermined
Securing Method	:	Loose
Degree of binding	:	Friable
Surface structure	:	Fibrous
Condition	:	Slightly damaged
Risk classification	:	N/A
Recommendation	:	N/A

Asbestos	Percentage
no asbestos	< 0,1% (none)
according to laboratory analysis (PLM)	

Remarks:

This concerns loose spare gasket material "Spitmaan AF11".



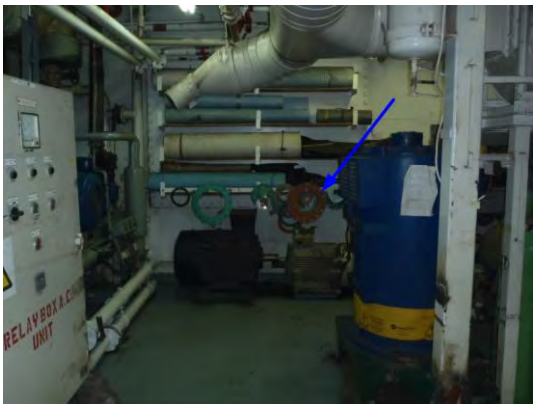


Photo: 22, Gasket (cardboard)

Source 23, Gasket (cardboard)	Source ID (EVA): 135579

Sample ID/Serial no.:		88909/MM23
Location	:	Foreward engine room, tanktop
Quantity (±)[1]	:	Undetermined
Securing Method	:	Loose
Degree of binding	:	Friable
Surface structure	:	Fibrous
Condition	:	Slightly damaged
Risk classification	:	N/A
Recommendation	:	N/A

Asbestos	Percentage
no asbestos	< 0,1% (none)
according to laboratory analysis (PLM)	

Remarks:

This concerns loose spare gasket material "Spitmaan AF120".

Photo: 23, Gasket (cardboard)

Source 24, Gasket (cardboard)	**Source ID (EVA): 135580**

Sample ID/Serial no.:		88910/MM24
Location	:	Foreward engine room, tanktop
Quantity (±)[1]	:	Undetermined
Securing Method	:	Loose
Degree of binding	:	Friable
Surface structure	:	Fibrous
Condition	:	Slightly damaged
Risk classification	:	1
Recommendation	:	No immediate risk. Control plan recommended.

Asbestos	**Percentage**
Chrysotile	30-60%
according to laboratory analysis (PLM)	

Remarks:

This concerns loose spare gasket material "Ferolite 333".

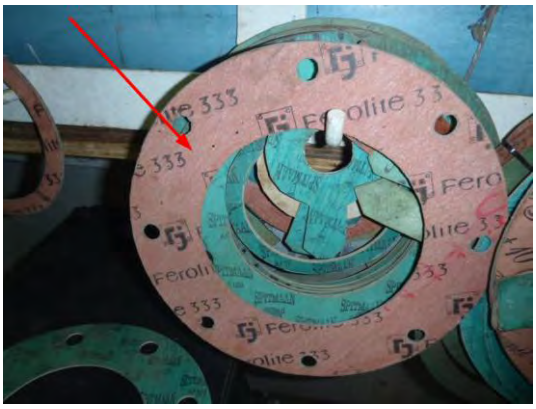


Photo: 24, Gasket (cardboard)

Source 25, Gasket (cardboard)	Source ID (EVA): 135581

Sample ID/Serial no.:		88911/MM25
Location	:	Foreward engine room, tanktop
Quantity (±)[1]	:	Undetermined
Securing Method	:	Loose
Degree of binding	:	Friable
Surface structure	:	Fibrous
Condition	:	Slightly damaged
Risk classification	:	N/A
Recommendation	:	N/A

Asbestos	Percentage
no asbestos	< 0,1% (none)
according to laboratory analysis (PLM)	

Remarks:

This concerns loose spare gasket material, green unmarked brand.

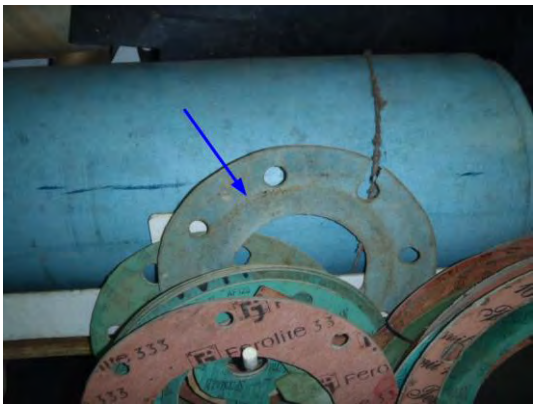


Photo: 25, Gasket (cardboard)

Source 26, Gasket (cardboard)	Source ID (EVA): 135582

Sample ID/Serial no.:		88912/MM26
Location	:	Foreward engine room, tanktop
Quantity (±)[1]	:	Undetermined
Securing Method	:	Loose
Degree of binding	:	Friable
Surface structure	:	Fibrous
Condition	:	Slightly damaged
Risk classification	:	1
Recommendation	:	No immediate risk. Control plan recommended.

Asbestos	Percentage
Chrysotile	30-60%
according to laboratory analysis (PLM)	

Remarks:

This concerns loose spare gasket material "Tesnit 10".

Photo: 26, Gasket (cardboard)

Source 27, Gasket (cardboard)	Source ID (EVA): 135583

Sample ID/Serial no.:	88913/MM27
Location :	Foreward engine room, tanktop
Quantity (±)[1] :	Undetermined
Securing Method :	Loose
Degree of binding :	Friable
Surface structure :	Fibrous
Condition :	Slightly damaged
Risk classification :	N/A
Recommendation :	N/A

Asbestos	Percentage
no asbestos	< 0,1% (none)
according to laboratory analysis (PLM)	

Remarks:

This concerns spare gasket material "3 Star 6000".

Photo: 27, Gasket (cardboard)

Source 28, Gasket (cardboard)	Source ID (EVA): 135584

Sample ID/Serial no.:		88914/MM28
Location	:	Foreward engineroom tanktop
Quantity (±)[1]	:	Undetermined
Securing Method	:	Loose
Degree of binding	:	Friable
Surface structure	:	Fibrous
Condition	:	Slightly damaged
Risk classification	:	N/A
Recommendation	:	N/A

Asbestos	Percentage
no asbestos	< 0,1% (none)
according to laboratory analysis (PLM)	

Remarks:

This concerns spare gasket material "3 Star 6030.

Photo: 28, Gasket (cardboard)

Source 29, Gasket (cardboard)	Source ID (EVA): 135585

Sample ID/Serial no.:	88915/MM29
Location :	Foreward engine room, tanktop
Quantity (±)[1] :	Undetermined
Securing Method :	Clamped in between flanges
Degree of binding :	Friable
Surface structure :	Fibrous
Condition :	Slightly damaged
Risk classification :	N/A
Recommendation :	N/A

Asbestos	Percentage
no asbestos	< 0,1% (none)
according to laboratory analysis (PLM)	

Remarks:

This concerns gasket potable water system,FWD ER.

Photo: 29, Gasket (cardboard)

Source 30, Gasket (cardboard)	Source ID (EVA): 135586

Sample ID/Serial no.:		88916/MM30
Location	:	Foreward engine room, tanktop
Quantity (±)[1]	:	Undetermined
Securing Method	:	Clamped in between flanges
Degree of binding	:	Friable
Surface structure	:	Fibrous
Condition	:	Slightly damaged
Risk classification	:	2
Recommendation	:	No immediate risk. Control plan recommended.

Asbestos	Percentage
Chrysotile	5-10%
according to laboratory analysis (PLM)	

Remarks:

This conserns gasket black water system, FWD ER.

Photo: 30, Gasket (cardboard)

Source 31, Gasket (cardboard)	Source ID (EVA): 135587

Sample ID/Serial no.:	88917/MM31
Location :	Bow thruster room, tanktop
Quantity (±)[1] :	Undetermined
Securing Method :	Clamped in between flanges
Degree of binding :	Friable
Surface structure :	Fibrous
Condition :	Slightly damaged
Risk classification :	2
Recommendation :	No immediate risk. Control plan recommended.

Asbestos	Percentage
Chrysotile	30-60%
according to laboratory analysis (PLM)	

Remarks:

This concerns gasket diesel oil tank, bow thruster room.

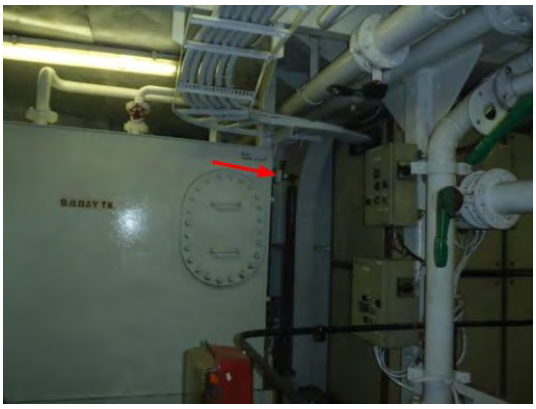


Photo: 31, Gasket (cardboard)

Source 32, Gasket (cardboard)	Source ID (EVA): 135588

Sample ID/Serial no.:	88918/MM32
Location :	Bow thruster room, tanktop
Quantity (±)[1] :	Undetermined
Securing Method :	Clamped in between flanges
Degree of binding :	Friable
Surface structure :	Fibrous
Condition :	Slightly damaged
Risk classification :	2
Recommendation :	No immediate risk. Control plan recommended.

Asbestos	Percentage
Chrysotile	30-60%
according to laboratory analysis (PLM)	

Remarks:

This concerns gasket hot water system, BTR.

Photo: 32, Gasket (cardboard)

Source 33, Insulation (insulation material)	Source ID (EVA): 135591

Sample ID/Serial no.:	88920/MM33
Location :	Bow thruster room, tanktop
Quantity (±)[1] :	Undetermined
Securing Method :	Assimilated
Degree of binding :	Friable
Surface structure :	Fibrous
Condition :	Slightly damaged
Risk classification :	N/A
Recommendation :	N/A

Asbestos	Percentage
no asbestos	< 0,1% (none)
according to laboratory analysis (PLM)	

Remarks:

This concerns insulation on ships hull, BTR

Photo: 33, Insulation (insulation material)

Source 34, Gasket (cardboard)	Source ID (EVA): 135592

Sample ID/Serial no.:		88921/MM34
Location	:	Storage space, tanktop
Quantity (±)[1]	:	Undetermined
Securing Method	:	Clamped in between flanges
Degree of binding	:	Friable
Surface structure	:	Fibrous
Condition	:	Slightly damaged
Risk classification	:	2
Recommendation	:	No immediate risk. Control plan recommended.

Asbestos	Percentage
Chrysotile	30-60%
according to laboratory analysis (PLM)	

Remarks:

This concerns gasket pressured air system, store.

Photo: 34, Gasket (cardboard)

Source 35, Knife fuse (parts)	Source ID (EVA): 135593

Sample ID/Serial no.:		88922/MM35
Location	:	Storage space, tanktop
Quantity (±)[1]	:	Undetermined
Securing Method	:	Loose
Degree of binding	:	Friable
Surface structure	:	Fibrous
Condition	:	Slightly damaged
Risk classification	:	1
Recommendation	:	Removal urgently required. Preventing re-use.

Asbestos	Percentage
Chrysotile	15-30%
according to laboratory analysis (PLM)	

Remarks:

This concerns knife fuses in electrical store.

Photo: 35, Knife fuse (parts)

Source 36, Insulation (insulation material)	Source ID (EVA): 135596

Sample ID/Serial no.:	88923/MM36
Location :	Engine room, tanktop
Quantity (±)[1] :	Undetermined
Securing Method :	Assimilated
Degree of binding :	Friable
Surface structure :	Fibrous
Condition :	Slightly damaged
Risk classification :	N/A
Recommendation :	N/A

Asbestos	Percentage
no asbestos	< 0,1% (none)
according to laboratory analysis (PLM)	

Remarks:

This conserns insulation exhaust lines generator room.

Photo: 36, Insulation (insulation material)

Source 37, Seal (cord)	Source ID (EVA): 135602

Sample ID/Serial no.:		88924/MM37
Location	:	Engine room, tanktop
Quantity (±)[1]	:	Undetermined
Securing Method	:	Clamped
Degree of binding	:	Friable
Surface structure	:	Fibrous
Condition	:	Slightly damaged
Risk classification	:	N/A
Recommendation	:	N/A

Asbestos	Percentage
no asbestos	< 0,1% (none)
according to laboratory analysis (PLM)	

Remarks:

This concerns gland seal bilge water valve

Photo: 37, Seal (cord)

Source 38, Seal (cord)	Source ID (EVA): 135607

Sample ID/Serial no.:		88925/MM38
Location	:	Engine room, tanktop
Quantity (±)[1]	:	Undetermined
Securing Method	:	Clamped
Degree of binding	:	Friable
Surface structure	:	Fibrous
Condition	:	Slightly damaged
Risk classification	:	N/A
Recommendation	:	N/A

Asbestos	Percentage
no asbestos	< 0,1% (none)
according to laboratory analysis (PLM)	

Remarks:

This concerns gland seal diesel oil valve main engine.

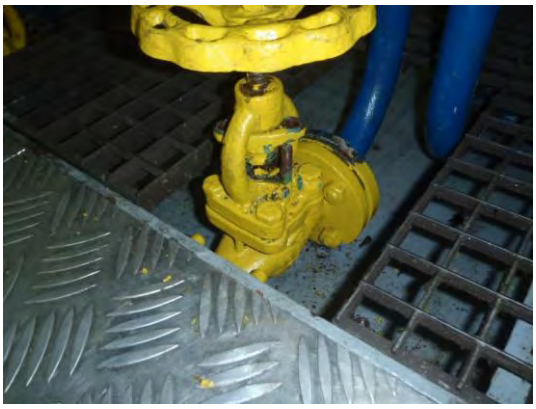


Photo: 38, Seal (cord)

Source 39, Seal (sealant)	Source ID (EVA): 135608

Sample ID/Serial no.:		88926/MM39
Location	:	Outside, D-Deck, deck (outside)
Quantity (±)[1]	:	Undetermined
Securing Method	:	Smeared
Degree of binding	:	Non friable
Surface structure	:	Non fibrous
Condition	:	Slightly damaged
Risk classification	:	2
Recommendation	:	No immediate risk.

Asbestos	Percentage
Chrysotile	2-5%
according to laboratory analysis (PLM)	

Remarks:

This concerns sealant in cable transit, D-deck.

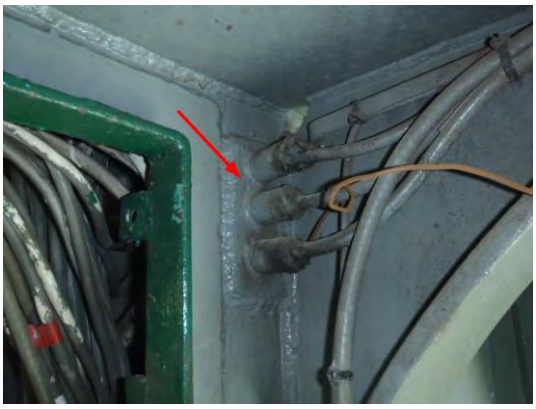


Photo: 39, Seal (sealant)

Source 40, Insulation (fabric)	Source ID (EVA): 135613

Sample ID/Serial no.:		88927/MM40
Location	:	Outside, D-Deck outside, deck (outside)
Quantity (±)[1]	:	Undetermined
Securing Method	:	Wrapped
Degree of binding	:	Friable
Surface structure	:	Fibrous
Condition	:	Slightly damaged
Risk classification	:	N/A
Recommendation	:	N/A

Asbestos	Percentage
no asbestos	< 0,1% (none)
according to laboratory analysis (PLM)	

Remarks:

This concerns fabric wrapped around several hoses throughout vessel.

Photo: 40, Insulation (fabric)

Source 41, Gasket (cardboard)	Source ID (EVA): 135626

Sample ID/Serial no.:		88930/MM41
Location	:	Outside, C-Deck, deck (outside)
Quantity (±)[1]	:	Undetermined
Securing Method	:	Clamped in between flanges
Degree of binding	:	Friable
Surface structure	:	Fibrous
Condition	:	Slightly damaged
Risk classification	:	2
Recommendation	:	No immediate risk. Control plan recommended.

Asbestos	Percentage
Chrysotile	30-60%
according to laboratory analysis (PLM)	

Remarks:

This concerns gasket in sewage system.

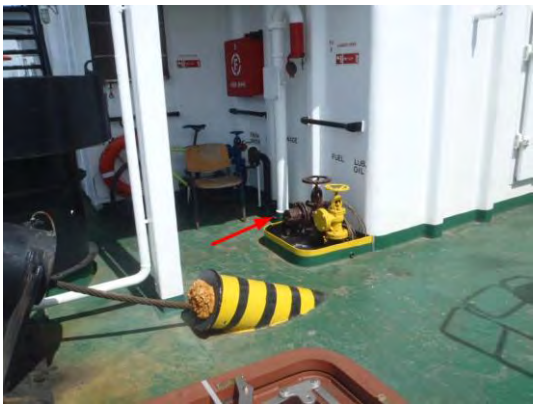


Photo: 41, Gasket (cardboard)

Source 42, Gasket (cardboard)	Source ID (EVA): 135644

Sample ID/Serial no.:	88934/MM42
Location :	Outside, C-Deck, deck (outside)
Quantity (±)[1] :	Undetermined
Securing Method :	Clamped in between flanges
Degree of binding :	Friable
Surface structure :	Fibrous
Condition :	Slightly damaged
Risk classification :	2
Recommendation :	No immediate risk. Control plan recommended.

Asbestos	Percentage
Chrysotile	30-60%
according to laboratory analysis (PLM)	

Remarks:

This concerns gasket in air vent outside.

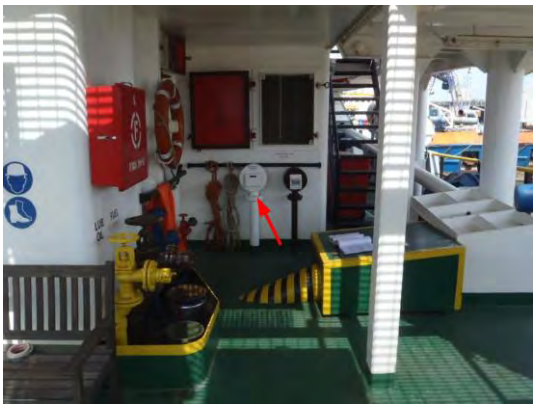


Photo: 42, Gasket (cardboard)

Source 43, Gasket (cardboard)	Source ID (EVA): 135651

Sample ID/Serial no.:		88935/MM43
Location	:	AC room D-Deck
Quantity (±)[1]	:	Undetermined
Securing Method	:	Clamped in between flanges
Degree of binding	:	Friable
Surface structure	:	Fibrous
Condition	:	Slightly damaged
Risk classification	:	2
Recommendation	:	No immediate risk. Control plan recommended.

Asbestos	Percentage
Chrysotile	30-60%
according to laboratory analysis (PLM)	

Remarks:

This concerns gasket in AC system, AC room.

Photo: 43, Gasket (cardboard)

3. Asbestos Survey Restrictions

3.1 General Restrictions of Asbestos Survey

In every asbestos risk survey carried out by Oesterbaai engineers, work is carried out very thoroughly and systematically. Particular attention is paid to tracing all asbestos-containing materials. Through proper preparation, employment of specialised and experienced personnel and the execution of asbestos survey, according to well thought-out plan, minimises asbestos-containing materials being overlooked. There is always a small chance that asbestos-containing materials are left unnoticed, despite the knowledge of more than 3500 applications. The investigation is merely an observation of a given moment. Oesterbaai engineers are not responsible for anything that may have changed at the investigation location, after the investigation date. This report follows an obligation to endeavour, not an obligation, for results.

3.2 Restrictions Due to Constructional Inaccessibility

The aim of this asbestos risk survey is to identify all asbestos-containing materials. However, there are certain situations that can only be inspected by means of destructive methods; examples are asbestos cement pipes cast in foundations or asbestos cement adjustment plates under or beneath walls and void spaces concealed or filled with rubble, etc. There is always a possibility that concealed asbestos-containing applications are left unnoticed due to constructional inaccessibility.

3.3 Locations Not Inspected for Asbestos

Whenever the survey is carried out on a vessel in use, destructive actions are kept to a minimum. This also applies explicitly to pipe insulation, which means that all pipe insulation is restricted due to constructional inaccessibility, except for locations where damage is visible down to the core, or where the material is sampled.

In shafts, twin-walls, chimneys and other locations only accessible through destructive investigation, and where no destructive investigation was carried out, no visual inspection was carried out.

In the table below the surveyor recorded a few specific restrictions recorded during the asbestos survey on de project location. No visual inspections could be performed due to these restrictions.

Location Specific Limitations During Asbestos Survey
inside voids, tanks, holds and bilges
mechanical object (cranes, machinery, etc)
electrical equipment (switchboards, motors)
inside air ducts

table 2: limitations during survey

4. Asbestos Removal Proposal

4.1 Outsourcing Removal

In the Netherlands, it is legally required to remove the asbestos from a property or property to be demolished, before resuming demolition. Companies holding the SC-530 Process Certificate of Asbestos Removal are authorised to remove asbestos. Various (certified) asbestos-removal companies can be invited to submit proposals for asbestos removal.

4.2 Asbestos Remission Techniques

There are a number of techniques for the removal of asbestos-containing materials. The techniques are aimed at limiting the dispersion of asbestos fibres into the environment and keeping possible health risks to the implementing staff to a minimum. The removal methods are divided into four categories:

1. *Use of a containment:*

If containment is used, an air-tight work space is created around the location of the asbestos source, thus ensuring that there is no emission of asbestos fibres into the environment. In the work space, underpressure is created using a powerful exhaust system. This system has a very fine filter that filters the asbestos fibres from the air in the work space; it then discharges clean air in the work space, which is continuously refreshed. Having created the underpressure, asbestos-containing material removal can be resumed. This is carried out by operators using appropriate protective clothing and protective breathing equipment. Once all asbestos has been removed, an air measurement (release) is carried out by an independently certified and accredited laboratory. The containment may only be removed once the volume of asbestos fibres measured in the air falls below the minimum statutory limit.

2. *Use of a glove bag:*

A glove bag is a special airtight bag that is fitted around the asbestos-containing material. This bag has built-in gloves that allow work to be done in an isolated environment, preventing dispersion of asbestos fibres into the environment. As a precaution, the operators use appropriate protective clothing and protective breathing equipment.

3. *Outside Remediation:*

This is done outside, without an airtight workspace and is permitted only in a limited number of cases; for example, if the asbestos-containing material can be removed without damage, so that there is no risk of the emission of asbestos fibres into the environment. In such situations, the asbestos-containing material has to be solid, have good binding capacity, and have to be easily dismantled. Safety regulations state that contractors are required to wear protective clothing and protective breathing equipment. A visual inspection must be carried out by an inspector from an RvA-approved laboratory after completion of tasks.

4. *Direct Wrapping:*

Direct wrapping is permitted if the asbestos-containing material is attached to an easily dismantled object or an object which is already detached. The asbestos source is impregnated with a latex-based spray before removal. The asbestos-containing material is then double-wrapped and disposed of as asbestos-containing waste.

4.3 Advice for Remission of the Identified Asbestos Sources

Asbestos sources can be harmful to the environment and to people working or living in the area/room where asbestos is present. In general, asbestos sources can remain in that area/room as long as the asbestos fibres are bound in the material, e.g. in cement plates. There is no real risk of inhaling asbestos fibres provided that those materials are undamaged.

Asbestos sources, in which the asbestos sources are not securely bound, pose an actual risk; for example, in pipe insulation and asbestos sprayed onto steel structures.

In the table below, a differentiation is made between asbestos sources that have to be removed due to actual risk and asbestos sources that can safely remain on the vessels/platforms until renovation (maintenance) or demolition of the vessels/platforms.

The table below indicates remission methods recommended for each asbestos source. However, please note that this recommendation is not binding. The certified asbestos remediation officer may deviate from the recommendations.

Source/ID	Description	Removal methods	Remarks
2/135454	cardboard, gasket	containment	direct wrapping when removed with the flanges
3/135455	cardboard, gasket	containment	direct wrapping when removed with the flanges
5/135457	cardboard, gasket	containment	direct wrapping when removed with the flanges
6/135458	cardboard, level gauges	direct wrapping	when removal of entire gauge
7/135459	cardboard, gasket	containment	direct wrapping when removed with the flanges
8/135460	cardboard, gasket	containment	direct wrapping when removed with the flanges
10/135464	cardboard, gasket	containment	direct wrapping when removed with the flanges
11/135465	cardboard, gasket	containment	direct wrapping when removed with the flanges
12/135466	friction material, brake pad	direct wrapping	none
13/135469	friction material, brake pad	direct wrapping	none
14/135472	friction material, brake pad	direct wrapping	none
15/135475	cardboard, gasket	containment	direct wrapping when removed with the flanges
18/135574	cardboard, gasket	containment	direct wrapping when removed with the flanges
19/135575	cardboard, gasket	containment	direct wrapping when removed with the flanges
20/135576	cardboard, gasket	containment	direct wrapping when removed with the flanges
24/135580	cardboard, gasket	direct wrapping	cleaning of the room with vacuum cleaner suitable for asbestosfibres recommended

Source/ID	Description	Removal methods	Remarks
26/135582	cardboard, gasket	direct wrapping	cleaning of the room with vacuum cleaner suitable for asbestosfibres recommended
30/135586	cardboard, gasket	containment	direct wrapping when removed with the flanges
31/135587	cardboard, gasket	containment	direct wrapping when removed with the flanges
32/135588	cardboard, gasket	containment	direct wrapping when removed with the flanges
34/135592	cardboard, gasket	containment	direct wrapping when removed with the flanges
35/135593	parts, knife fuse	direct wrapping	none
39/135608	sealant, Seal	outside remediation	none
41/135626	cardboard, gasket	outside remediation	none
42/135644	cardboard, gasket	outside remediation	none
43/135651	cardboard, gasket	containment	direct wrapping when removed with the flanges

Table 3: Remission technique recommendations and risk classification

4.4 Risk Classification

The risk classification of all identified asbestos-containing materials have been determined in accordance with “Commandment of 7th July 2006 to amend the Labour Conditions Act containing regulations regarding the exposure of employees to the hazards of asbestos” has been announced in the publication, “Staatsblad 348 year 2006”. The SMa-rt tool has been used to determine the risk level. SMA-rt, provided by the Ministry of Social Affairs and Employment, can be found by visiting the official website www.asbestinfo.nl. The subdivisions in the risk classes are based on air measurements that comply with the Health and Safety Act. SMa-rt is a dynamic system; Risk classes can change after the survey date due to changes in founded perceptions.

Risk class 1: LOW risk of exposure to asbestos
Art. 4.44: exposure level less than 0.01 fibers/cm^3
(less than 10,000 fibers/m^3)

Risk class 2: MEDIUM risk of exposure to asbestos
Art. 4.48: exposure level is 0.01 to 1 fibers/cm^3
(10,000 till 1,000,000 fibers/m^3)

Risk class 3: HIGH risk of exposure to asbestos
Art. 4.53a: exposure level higher than 1 fiber/cm^3
(more than 1,000,000 fibers/m^3)

Source/ID	Description	Risk Classification	Remarks
2/135454	cardboard, gasket	2	Chipping off affected Gasket material on the flange(s) or sandblasting the flange(s).
3/135455	cardboard, gasket	2	Chipping off affected Gasket material on the flange(s) or sandblasting the flange(s).
5/135457	cardboard, gasket	2	Chipping off affected Gasket material on the flange(s) or sandblasting the flange(s).
6/135458	cardboard, level gauges	1	This concerns parts which contain asbestos material. E.g.: knife fuses, central heating, electro motors, etc. The asbestos-containing material will not be modified. The parts will be removed entirely, wrapped and disposed of as asbestos-containing material.
7/135459	cardboard, gasket	2	Chipping off affected Gasket material on the flange(s) or sandblasting the flange(s).
8/135460	cardboard, gasket	2	Chipping off affected Gasket material on the flange(s) or sandblasting the flange(s).
10/135464	cardboard, gasket	2	Chipping off affected Gasket material on the flange(s) or sandblasting the flange(s).
11/135465	cardboard, gasket	2	Chipping off affected Gasket material on the flange(s) or sandblasting the flange(s).
12/135466	friction material, brake pad	2	
13/135469	friction material, brake pad	2	
14/135472	friction material, brake pad	2	
15/135475	cardboard, gasket	2	Chipping off affected Gasket material on the flange(s) or sandblasting the flange(s).
18/135574	cardboard, gasket	2	Chipping off affected Gasket material on the flange(s) or sandblasting the flange(s).
19/135575	cardboard, gasket	2	Chipping off affected Gasket material on the flange(s) or sandblasting the flange(s).

Source/ID	Description	Risk Classification	Remarks
20/135576	cardboard, gasket	2	Chipping off affected Gasket material on the flange(s) or sandblasting the flange(s).
24/135580	cardboard, gasket	1	Wrapping of detached undamaged asbestos-containing Gasket material which has not been processed. Impregnate material before removal.
26/135582	cardboard, gasket	1	Wrapping of detached undamaged asbestos-containing Gasket material which has not been processed. Impregnate material before removal.
30/135586	cardboard, gasket	2	Chipping off affected Gasket material on the flange(s) or sandblasting the flange(s).
31/135587	cardboard, gasket	2	Chipping off affected Gasket material on the flange(s) or sandblasting the flange(s).
32/135588	cardboard, gasket	2	Chipping off affected Gasket material on the flange(s) or sandblasting the flange(s).
34/135592	cardboard, gasket	2	Chipping off affected Gasket material on the flange(s) or sandblasting the flange(s).
35/135593	parts, knife fuse	1	This concerns parts which contain asbestos material. E.g.: knife fuses, central heating, electro motors, etc. The asbestos-containing material will not be modified. The parts will be removed entirely, wrapped and disposed of as asbestos-containing material.
39/135608	sealant, seal	2	Activities in which the plastic structure of the sealant is affected (e.g. burning off or cutting out).
41/135626	cardboard, gasket	2	Chipping off affected Gasket material on the flange(s) or sandblasting the flange(s).
42/135644	cardboard, gasket	2	Chipping off affected Gasket material on the flange(s) or sandblasting the flange(s).
43/135651	cardboard, gasket	2	Chipping off affected Gasket material on the flange(s) or sandblasting the flange(s).

Table 4: Risk classification and remarks

5. Safety and Health

5.1 Asbestos and Health Hazards

Asbestos fibres are harmful to human health. The asbestos fibres can penetrate the human body through the mouth, stomach and intestines, via the skin and the airways. Research has shown that asbestos fibres that have penetrated the body can have harmful effects. The risk of asbestos-related disease, however, is greatest if asbestos fibres are inhaled.

The inhalation of asbestos fibres can jeopardise human health. The dimensions of asbestos fibres greatly influence the health hazards. Asbestos fibres with longer than 5 µm, with a diameter of less than 3 µm and a length / width ratio of greater 3 : 1 are the most harmful. Due to their microscopically small dimensions, these fibres are invisible to the naked eye, and are thus unnoticeably inhaled. A large proportion of the inhaled harmful asbestos fibres, which enter the lungs, cannot be discharged by the lungs. These fibres remain in the lungs, and once there, can cause damage in a number of ways. The symptoms do not emerge immediately but are often only noticed years later.

Harmful asbestos fibres which have penetrated the body can cause three types of diseases: asbestos-related lung cancer, asbestosis and Mesothelioma. All diseases mentioned can be contracted only through inhalation of asbestos fibres.

Asbestos-related lung cancer:

Harmful asbestos fibres can damage the lung cells in the alveoli. These damaged cells can disrupt the multiplication process in the cells. The result can be uncontrolled growth, which is known as lung cancer. Asbestos-related lung cancer can be caused by any type of asbestos, and may also occur following limited exposure to asbestos fibres. The combination of smoking *and* exposure to asbestos greatly increases the chances of contracting lung cancer, compared to exposure to asbestos inhalation only or smoking only. Generally speaking, the period between exposure to asbestos and the diagnosis of lung cancer is more than 10 years.

Mesothelioma:

Organs such as the lungs and the heart are surrounded by a membrane that forms a sac around the organ. As a result, the organ can move without being obstructed by other body parts. Asbestos fibres that have penetrated the lungs or intestines can damage the cells of the chest or stomach membrane. The damaged cells can lead to malignant, uncontrolled cell growth in these membranes.

Mesothelioma can be caused after a very brief exposure to small concentrations of asbestos dust. The more frequent the exposure and the greater the fibre concentrations, the greater the risk of developing Mesothelioma. Mesothelioma can develop only from exposure to asbestos fibres, particularly crocidolite and amosite fibres. The period between exposure to asbestos and the diagnosis of Mesothelioma can vary from 10 and 60 years. Mesothelioma is incurable and once the syndrome has been identified, life expectancy is between 6 months to 2 years.

Asbestosis:

Asbestosis, a pulmonary disease, can be caused by exposure to very high concentrations of asbestos fibres. Lung capacity is reduced as a result of large quantities of asbestos in the lungs. The decrease in lung capacity means that the heart has to pump harder to transport oxygen to the rest of the body. The heart, eventually, will be overloaded due to insufficient capacity. Asbestosis can be developed 10 to 30 years after exposure to asbestos fibres, and it is incurable.

5.2 Calamities

Before or during the dismantling or renovation work, calamities or disasters could arise where large asbestos fibre emissions occur. For example, as a result of fire or collapse, asbestos sources present in the object can be damaged in such a way that it results in contamination. In these cases, it is vital that the emission of asbestos fibres to the environment and human exposure to asbestos fibres be kept to a minimum. People without personal protective equipment and protective breathing equipment should be as far as possible from the asbestos source. In the event of disasters, the following bodies should be immediately contacted: municipal authorities, police, health and safety at work inspectorate, health and safety at work services and environmental hygiene inspectorate.

6. Conclusions and Recommendations

At the asbestos survey TYPE A in accordance with SC-540 of FFPV Jan Steen, at the time of the inspection located at Graanweg 18, Moerdijk, the following asbestos-containing materials were found:

Source/ID	Description	Location	Quantity (±)[1]	Sample ID/ Serial no.	Analysis	Risk Classification
2/135454	Gasket (cardboard)	Engine room, tanktop deck	undetermined	88882/MM2	Chrysotile 30-60%	2
3/135455	Gasket (cardboard)	Engine room, tanktop	undetermined	88883/MM3	Chrysotile 30-60%	2
5/135457	Gasket (cardboard)	Engine room, tanktop	undetermined	88885/MM5	Chrysotile 30-60%	2
6/135458	Gasket (cardboard)	Engine room, tanktop	undetermined	88886/MM6	Chrysotile 30-60%	2
7/135459	Gasket (cardboard)	Engine room, tanktop	undetermined	88887/MM7	Chrysotile 30-60%	2
8/135460	Gasket (cardboard)	Engine room, tanktop	undetermined	88888/MM8	Chrysotile 30-60%	2
10/135464	Gasket (cardboard)	Engine room, tanktop	undetermined	88891/MM10	Chrysotile 30-60%	2
11/135465	Gasket (cardboard)	Workshop, tanktop	undetermined	88892/MM11	Chrysotile 30-60%	2
12/135466	brake pad (friction material)	Winch room, tanktop	undetermined	88893/MM12	Chrysotile 5-10%	2
13/135469	brake pad (friction material)	Winch room, tanktop	undetermined	88896/MM13	Chrysotile 5-10%	2
14/135472	brake pad (friction material)	Winch room, tanktop	undetermined	88899/MM14	Chrysotile 5-10%	2
15/135475	Gasket (cardboard)	workshop, tanktop	undetermined	88901/MM15	Chrysotile 30-60%	2
18/135574	Gasket (cardboard)	Hydraulic room, tanktop	undetermined	88904/MM18	Chrysotile 30-60%	2
19/135575	Gasket (cardboard)	Hydraulic room, tanktop	undetermined	88905/MM19	Chrysotile 15-30%	2

Source/ID	Description	Location	Quantity (±)[1]	Sample ID/ Serial no.	Analysis	Risk Classification
20/135576	Gasket (cardboard)	Hydraulic room, tanktop	undetermined	88906/MM20	Chrysotile 15-30%	2
24/135580	Gasket (cardboard)	Foreward engine room, tanktop	undetermined	88910/MM24	Chrysotile 30-60%	1
26/135582	Gasket (cardboard)	Foreward engine room, tanktop	undetermined	88912/MM26	Chrysotile 30-60%	1
30/135586	Gasket (cardboard)	Foreward engineroom tanktop	undetermined	88916/MM30	Chrysotile 5-10%	2
31/135587	Gasket (cardboard)	Bow thruster room tanktop	undetermined	88917/MM31	Chrysotile 30-60%	2
32/135588	Gasket (cardboard)	Bow thruster room tanktop	undetermined	88918/MM32	Chrysotile 30-60%	2
34/135592	Gasket (cardboard)	Storage space tanktop	undetermined	88921/MM34	Chrysotile 30-60%	2
35/135593	knife fuse (parts)	Storage space, tanktop	undetermined	88922/MM35	Chrysotile 15-30%	1
39/135608	Seal (sealant)	Outside D-Deck, deck (outside)	undetermined	88926/MM39	Chrysotile 2-5%	2
41/135626	Gasket (cardboard)	Outside C-Deck, deck (outside)	undetermined	88930/MM41	Chrysotile 30-60%	2
42/135644	Gasket (cardboard)	Outside C-Deck, deck (outside)	undetermined	88934/MM42	Chrysotile 30-60%	2
43/135651	Gasket (cardboard)	AC room, D-Deck	undetermined	88935/MM43	Chrysotile 30-60%	2

Table 5: Overview results

[1]) quantities of asbestos-containing materials found during the survey are on-the-spot estimates and are thus unfit for planning and/or calculation purposes

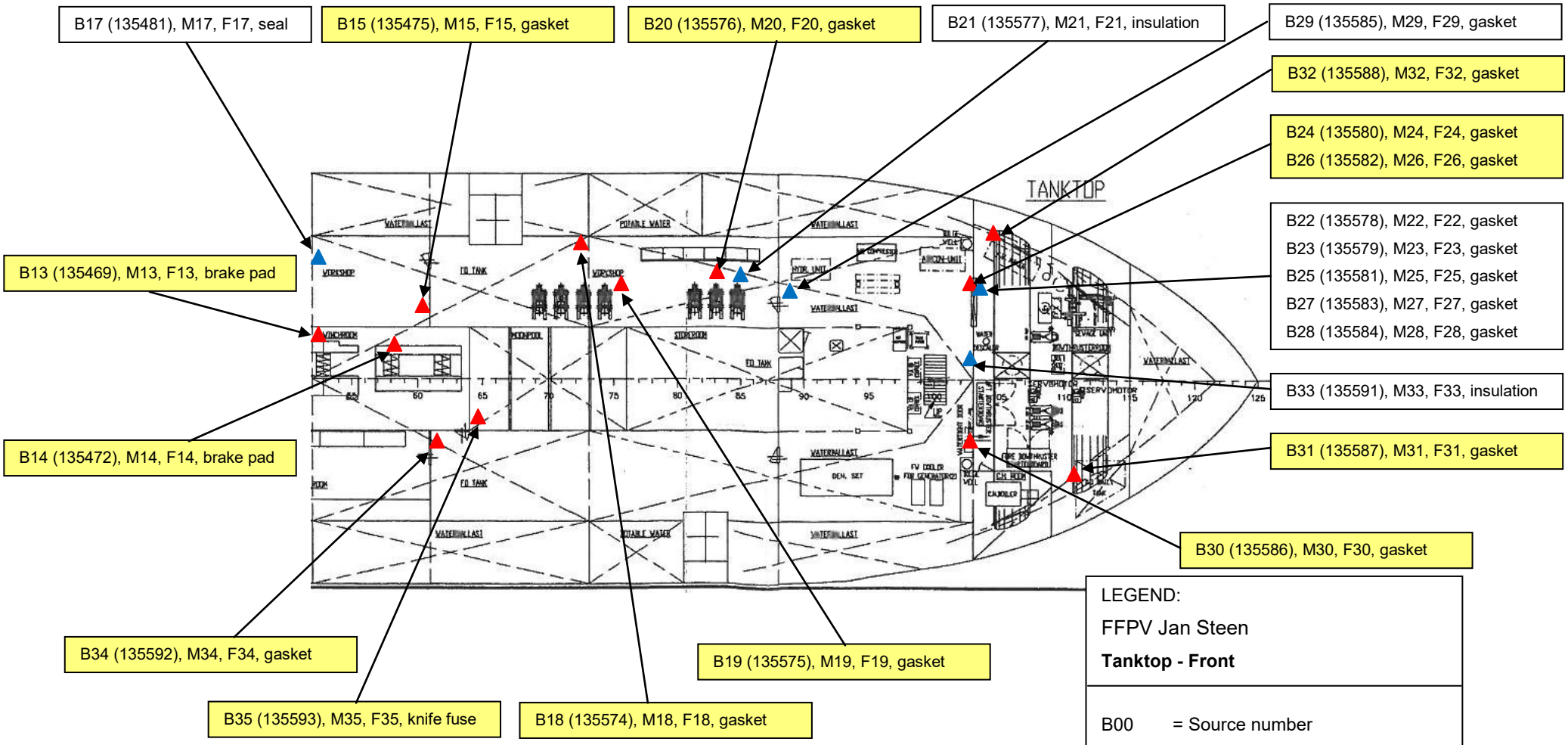
The removal methods recommended for the asbestos-containing materials are included in Chapter Four. Ingenieursbureau Oesterbaai b.v. aimed for the most comprehensive detection and registration of asbestos-containing materials, during the survey, in accordance with the SC-540 standard. Nonetheless, we recommend that potential contractors for the asbestos removal work have a survey made of the remediation location, so that they themselves can obtain an impression of the situation, in situ.

When none or limited destructive survey has been done, a TYPE B survey is necessary. This way, places that where previously inaccessible can be inspected. There is a legal requirement of having asbestos removal work carried out by a company certified in accordance with the SC-530 standard. Following remediation, it may be legally required to have an independent RvA accredited laboratory carry out a release measurement in order to check the work of the remediation company, and to determine if the remediated areas can be entered safely.

In all circumstances, it is advisable to call in an independent laboratory, after completion of tasks. It may also be worthwhile to have an independent laboratory or consultancy firm supervise the project (progress and safety), and inspect the asbestos removal work. Total project supervision from planning, appointment of remediation company, right through to release is another option worth considering. Ingenieursbureau Oesterbaai b.v. would be pleased to offer its services in any subsequent phases of the project.

Appendix A. Locations of the various sources

This appendix shows floor plans with sample locations and locations of asbestos-containing materials. Not all locations of asbestos-containing or asbestos-free items are marked. Only sampling points are marked.



LEGEND:

FFPV Jan Steen

Tanktop - Front

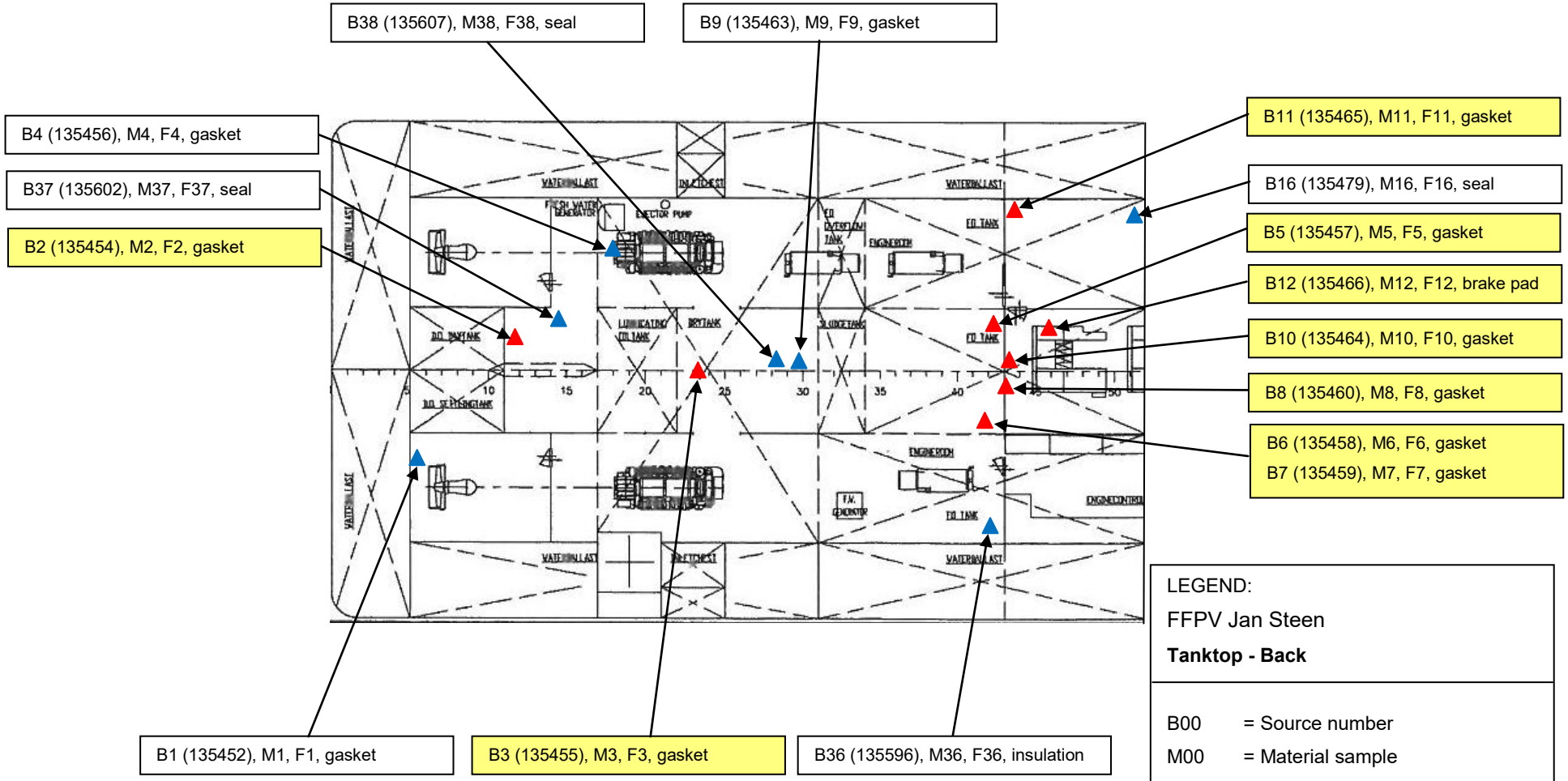
B00 = Source number

M00 = Material sample

F00 = Photo number

▲ Asbestos-containing object(s)

▲ Asbestos-free object(s)/material(s)



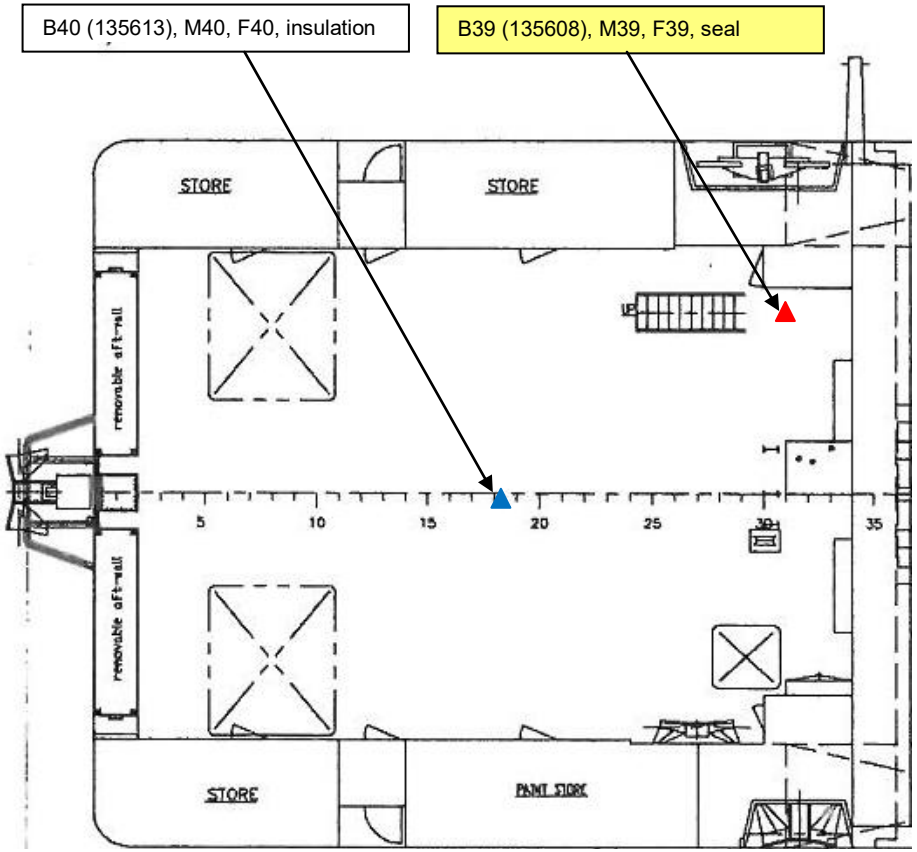
LEGEND:

FFPV Jan Steen

Tanktop - Back

B00 = Source number
M00 = Material sample
F00 = Photo number

▲ Asbestos-containing object(s)
▲ Asbestos-free object(s)/material(s)



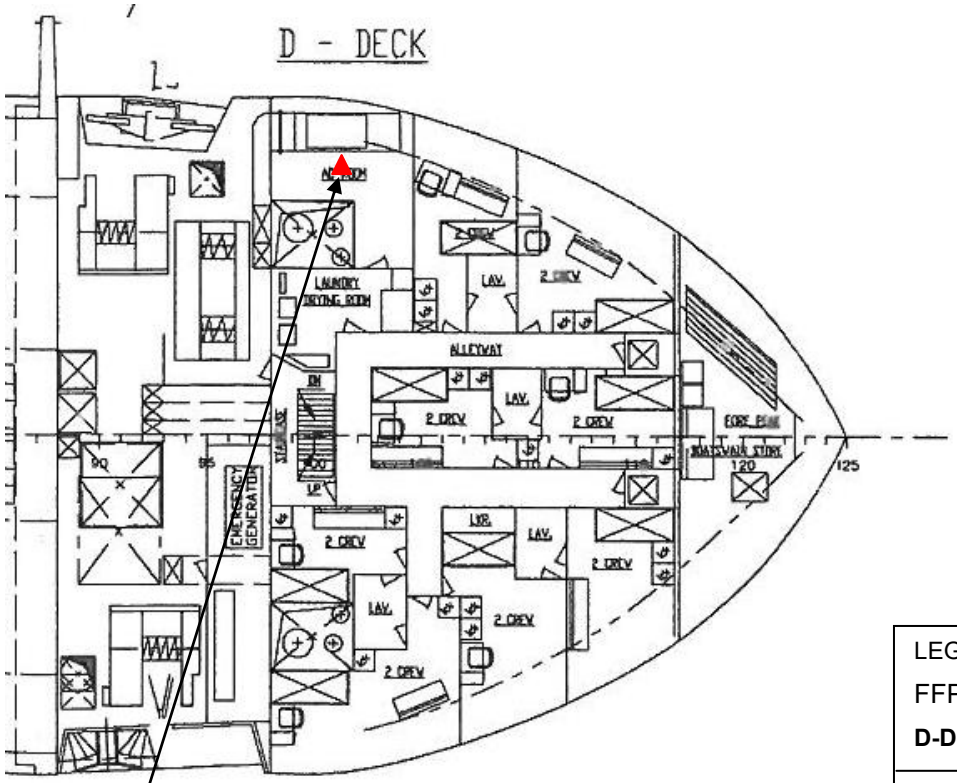
LEGEND:

FFPV Jan Steen

D-Deck - Back

B00 = Source number
M00 = Material sample
F00 = Photo number

▲ Asbestos-containing object(s)
▲ Asbestos-free object(s)/material(s)



LEGEND:

FFPV Jan Steen

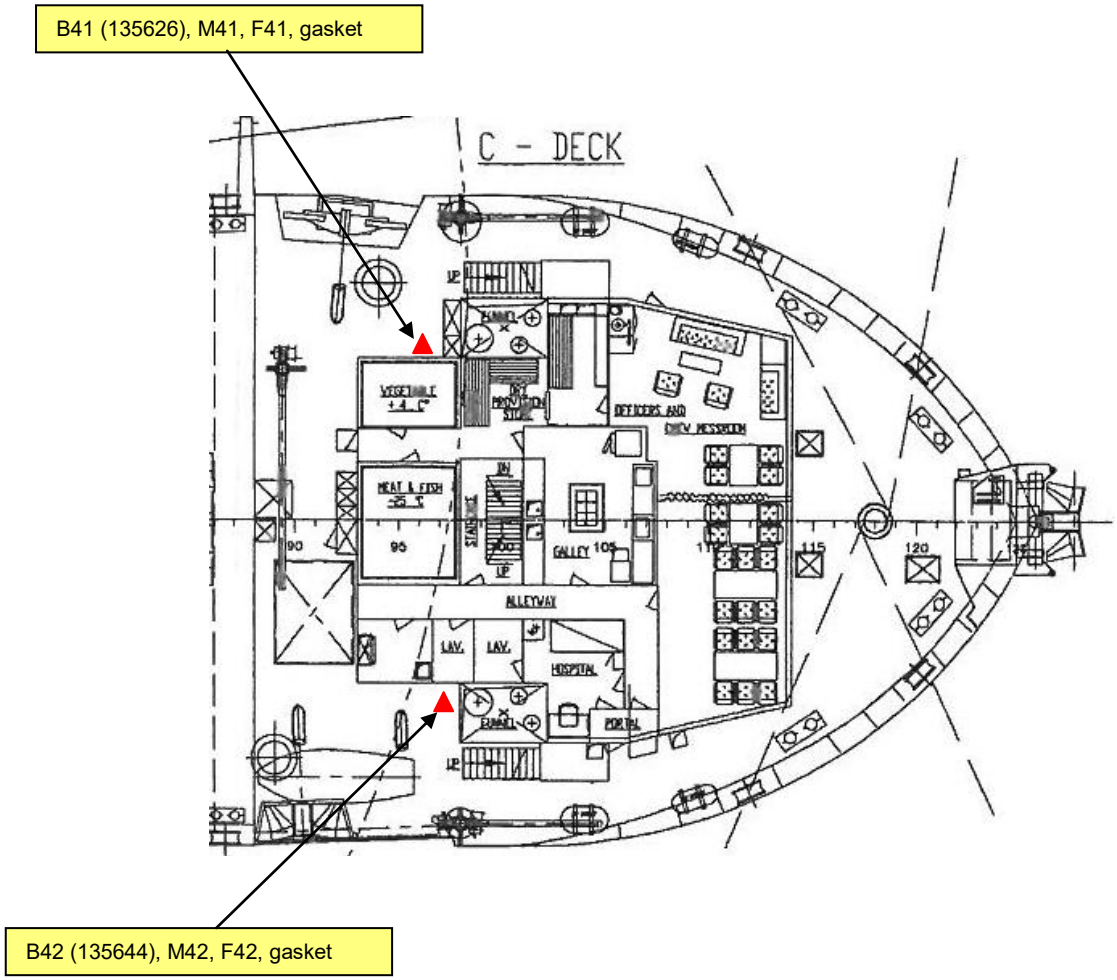
D-Deck - Front

B00 = Source number

M00 = Material sample

F00 = Photo number

▲ Asbestos-containing object(s)



LEGEND:

FFPV Jan Steen

C-Deck - Front

B00 = Source number

M00 = Material sample

F00 = Photo number

▲ Asbestos-containing object(s)

Appendix B. Certificates of the sample analysis

The following page(s) show the analysis results of the samples taken from suspected asbestos-containing materials.

FIBRECOUNT
ENVIRONMENTAL CONTROL

TESTEN RvA L140

1384674

Certificate of Analysis

confidential

Ingenieursbureau Oesterbaai B.V.
att. Mr. J. Gribnau
Hongkongstraat 5
3047 BR ROTTERDAM

Details

client reference : PAM-22867
sample location : Van Oord - Jan Steen
sampling by: : Ingenieursbureau Oesterbaai
analyses performed : NEN 5896
date received : 13-05-2011
date analyzed : 17-05-2011
samples analyzed : 43

Results

Fibrecount sample ID	client sample description / ID	asbestos* type	percentage	friability
319346	MM01 - gasket cooling water system, aquamaster room	no asbestos detected	<0.1%	n.a.
319347	MM02 - gasket fresh water system, ER tanktop	chrysotile	30-60%	friable
319348	MM03 - gasket bilge water system, ER tanktop	chrysotile	30-60%	friable
319349	MM04 - gasket cooling water system, ER tanktop	no asbestos detected	<0.1%	n.a.
319350	MM05 - gasket sludge system, ER tanktop	chrysotile	30-60%	friable
319351	MM06 - level gauge lub oil tank	chrysotile	30-60%	friable
319352	MM07 - gasket lube oil system, ER tanktop	chrysotile	30-60%	friable

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Fibrecount sample ID	client sample description / ID	asbestos* type	percentage	friability
319353	MM08 - gasket heavy fuel system, ER tanktop	chrysotile	30-60%	friable
319354	MM09 - gasket in flanges air duct, ER tanktop	no asbestos detected	<0.1%	n.a.
319355	MM10 - gasket heavy fuel system, ER tanktop	chrysotile	30-60%	friable
319356	MM11 - gasket in FiFi system, workshop	chrysotile	30-60%	friable
319357	MM12 - brake lining, aft PS winch 6	chrysotile	5-10%	Non friable
319358	MM13 - brake lining, aft SB winch 5	chrysotile	5-10%	Non friable
319359	MM14 - brake lining, winch 4	chrysotile	5-10%	Non friable
319360	MM15 - gasket hydraulic oil system, workshop	chrysotile	30-60%	friable
319361	MM16 - cord seal in spare parts cupboard, workshop	no asbestos detected	<0.1%	n.a.
319362	MM17 - white cord seal in spare parts cupboard, workshop	no asbestos detected	<0.1%	n.a.
319363	MM18 - gasket hydraulic oil system, hydraulic room	chrysotile	30-60%	friable
319364	MM19 - gasket hydraulic oil system, hydraulic room	chrysotile	15-30%	friable

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Certificate of Analysis

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Fibrecount sample ID	client sample description / ID	asbestos* type	percentage	friability
319365	MM20 - gasket hydraulic oil system, hydraulic room	chrysotile	15-30%	friable
319366	MM21 - insulation of switchboard cooling hoses	no asbestos detected	<0.1%	n.a.
319367	MM22 - spare gasket material "Spitmaan AF11"	no asbestos detected	<0.1%	n.a.
319368	MM23 - spare gasket material "Spitmaan AF120"	no asbestos detected	<0.1%	n.a.
319369	MM24 - spare gasket material "Ferolite 333"	chrysotile	30-60%	friable
319370	MM25 - spare gasket material, green unmarked brand	no asbestos detected	<0.1%	n.a.
319371	MM26 - spare gasket material "Tesnit 10"	chrysotile	30-60%	friable
319372	MM27 - spare gasket material "3 Star 6000"	no asbestos detected	<0.1%	n.a.
319373	MM28 - spare gasket material "3 Star 6030"	no asbestos detected	<0.1%	n.a.
319374	MM29 - gasket potable water system, FWD ER	no asbestos detected	<0.1%	n.a.
319375	MM30 - gasket black water system, FWD ER	chrysotile	5-10%	friable
319376	MM31 - gasket diesel oil tank, bow thruster room	chrysotile	30-60%	friable
319377	MM32 - gasket hot water system, BTR	chrysotile	30-60%	friable

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Fibrecount sample ID	client sample description / ID	asbestos* type	percentage	friability
319378	MM33 - insulation on ship's hull, BTR	no asbestos detected	<0.1%	n.a.
319379	MM34 - gasket pressured air system, store	chrysotile	30-60%	friable
319380	MM35 - knife fuses in electrical store	chrysotile	15-30%	friable
319381	MM36 - insulation exhaust lines generator room	no asbestos detected	<0.1%	n.a.
319382	MM37 - gland seal bilge water valve	no asbestos detected	<0.1%	n.a.
319383	MM38 - gland seal diesel oil valve main engine	no asbestos detected	<0.1%	n.a.
319384	MM39 - sealant in cable transit, D-deck	chrysotile	2-5%	Non friable
319385	MM40 - fabric wrapped around several hoses throughout vessel	no asbestos detected	<0.1%	n.a.
319386	MM41 - gasket in sewage system	chrysotile	30-60%	friable
319387	MM42 - gasket in air vent outside	chrysotile	30-60%	friable
319388	MM43 - gasket in AC system, AC room	chrysotile	30-60%	friable

*Asbestos: collective noun for different kinds of asbestos: chrysotile, amosite, crocidolite, actinolite, anthofullite, tremolite.
The estimation of asbestos friability (if present) is purely based on the received samples.
Fibrecount recommends scanning electron microscopy (SEM - ISO14966) analysis on organically bound materials (eg. floor tile, mastics, roofing materials, joint compounds) when PLM analysis shows undetectable quantities of asbestos. These materials often contain milled asbestos with fibre diameters and lengths too small to be resolved by the PLM and the analysis may yield a false negative result.
Fibrecount and its personnel shall not be liable for any misinformation provided to us by the client regarding these samples or for any misuse or interpretation of information supplied by us. Liability shall extend to provide replicate analysis only. Fibrecount will retain samples for a period of three months or otherwise specified. This report relates only to samples submitted and analyzed. This report may not be reproduced except for in full, without the

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Certificate of Analysis

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written approval of this laboratory. Please feel free to contact Fibrecount regarding any questions about these results, this report, or the analytical methods employed.

Authorised by: Joram Buissant des Amorie
Head of internal Laboratory

- All documents associated with this report are verified and authorised by the head of internal laboratory or or his substitute -

Appendix C. Evaluation Form

An evaluation form has been included in this appendix. Please complete this form when more asbestos-containing materials are found.

1. Asbestos Survey Type A			
Surveying Company		ingenieursbureau Oesterbaai BV	
SCA Code		02-D020034.01	
Report Number		PAM-22867	
Release Date		16th of June 2011 JG	
2. Asbestos Survey Type B			
Surveying Company			
SCA Code			
Report Number			
Release Date			
2. Asbestos Survey of Unforeseen Asbestos			
Surveying Company			
SCA Code			
Report Number			
Release Date			
Description of Unforeseen Asbestos			
Description	Location	Quantity	
Asbestos Remover			
Asbestos Removal Company			
SCA Code			
Name			
Release Date		Signature	
Sent to			
By (name)			
Date			
Initials			

Appendix D. Client Liabilities According to Legislation and Regulations

1. General

An asbestos-removal permit must be acquired from the council. The conditions for asbestos-removal are listed on this permit.

Who is entitled to apply for the permit and who is the permit holder?
1. The owner of the building / structure;
2. A representative of the owner: consultancy;
3. Building tenant.

Explanation:
1. The permit holder is held responsible to the council as a contact person for the reports and remissions.
If incomplete and thus not suitable for demolition permit, the council will contact the permit holder, who will then contact the Surveying Company. This also applies to asbestos-removal.
2. If the work is conflicting to the conditions stated on the permit, the council will contact the permit holder, and secondly, the asbestos-removal company.

The persons mentioned in points 1 to 3 can be the commissioner for asbestos survey, asbestos-removal, as well as the final assessment. He does not have to be the commissioner for the final inspection. Logically, he can leave this to the removal company.

The client is the one who:
1. Assigns the survey to a company that has a valid certificate to conduct an asbestos survey;
2. Requests a demolition permit from the council, specifying the intention to demolish/remove;
3. Assigns the final assessment of the asbestos removal to an accredited laboratory or inspection institution;
4. Assigns asbestos removal to an asbestos removal company that has a valid certificate for the removal of asbestos;
5. Gives notice to the council at least one week prior to commencement of work. The client will provide the precise date and times;
6. Receives the waste disposal coupon and the proof of release certificates from the asbestos removal company;
7. Sends copies of the final inspection results to the council within two weeks after execution
8. Receives and pays invoices received for services rendered (1 to 4).

The Client can delegate the actions listed under nos. 1, 2, 3, 5 and 7 to e.g. the asbestos-removal company, but still be responsible for the right paperwork (survey report and demolition permit)at the workplace.

2. Asbestos Removal Decree 2005

The responsibility of the Client to provide the right paperwork (survey report and demolition permit) at the workplace is listed in Par. 2, Article 3 and 5 and Par. 4, Article 10 of the Asbestos-Removal Act 2005.

The companies to be sub-contracted for asbestos surveying, asbestos-removal and final inspection are only permitted to carry out the work when they hold the legally required certificate, respective accreditation, as stated in art. 4.54a, 4.54d and 4.55a of the Health and Safety Act / Asbestos-Removal Act 2005.

3. Asbestos Survey Report

Drawn from the Asbestos Removal Decree 2005,
Stb 704 d.d. 16-12-2005 and Stb 87 d.d. 20-02-2006

Paragraph 2 – Asbestos survey
Art. 3-1-b:
Subsection b: The one who partially or wholly commissions the demolition or dismantling of (the Client) **…. has an asbestos survey report**

Art. 3-2-b:
Again, the one who removes asbestos himself or commissions it (the client) **…. has an asbestos survey report**

Art. 5
The one who does or commissions the work mentioned in paragraph 3 (the client), supplies, prior to commencement of work, a copy of the survey report to the one who performing the work (the asbestos removal client).

Conclusion:

Articles 3 and 5 clearly state:

The client possesses a survey report and provides a copy to the one who removes the asbestos. How the Client comes into possession of the report is not stated. The Client must have the report, so that should be arranged by the Client. Also see article 4.54a-1 to 5 and 4.54d-5 (appendix of the Health and Safety Decree)

Appendix Health and Safety Decree

Article 4.54a. Asbestos Survey

1. Before an action as mentioned in article 4.54, first subsection, part a,b or d, commences, the presence of asbestos or asbestos-containing products as well as crocidolite or crocidolite containing products will be completely surveyed and the results are published in a survey report.
2. The first subsection applies if employees can or will be exposed to asbestos or asbestos-containing products as well as crocidolite or crocidolite containing products.
3. The survey and the survey report, mentioned in the first subsection, will be carried out, distinctly drawn up, by a company in the possession of a certificate for asbestos surveying that has been delivered by Our Minister of a certifying institution.
4. A copy of the survey report will be provided to the company, as mentioned in article 4.54d, first subsection, that performs the action, as mentioned in article 4.54, first subsection, part a,b or d.
5. The certificate or a copy of it, is present at the workplace and has to be shown to an officer, as mentioned in article 24 of the law, when requested.

Article 4.54d. Asbestos Removal

1. The actions, as mentioned in article 4.54, first subsection, with exception of the actions as mentioned in article 4.54b, parts b till i, will be performed according to an operating plan drawn up in advance, as mentioned in article 4.55 by a company in possession of a certificate for asbestos removal, delivered by Our Minister or a certifying institution.
2. At a company as mentioned the first subsection, at least one person as mentioned in the third subsection is employed.
3. The actions, as mentioned in the first subsection, are performed under the constant supervision of a person who has a certificate of competence for the supervision of asbestos removal and crocidolite, which has been delivered by Our Minister or a certifying institution.
4. As far as the actions, mentioned in the first subsection, are also being done by other persons then the person mentioned in the third subsection, this person has to be in the possession of a certificate of competence for the supervision of asbestos removal and crocidolite, delivered by Our Minister or a certifying institution.
5. Before the actions commence, as mentioned in the first subsection, the company, as mentioned in the first subsection, possesses of a copy of the survey report as mentioned in article 4.54a, first subsection.
6. The certificates, as mentioned in the first, third and fourth subsection, or copies of it and the survey report, as mentioned in article 4.54a, first subsection, are present at the workplace and have to be shown to an officer, as mentioned in article 24 of the law, upon request..

Paragraph 4 - Constructions

Article 10: It is forbidden to demolish a construction without, or deviating from, the permit from Mayor and Alderman. A survey report has to be provided for the application for a demolition permit (article 10).The owner of the demolition permit is required to submit a copy of the permit to the demolition company.

Appendix E. SMA-rt

Risk classification according to SMA-rt is/are included in this section appendix.

SMA-rt forms are generated from an official Dutch website (www.asbestinfo.nl) and only available in Dutch. If asbestos removal is scheduled in The Netherlands or by using a Dutch SC-530 certified removal company, SMA-rt forms are obligatory.

SMA-rt 2009-APR Risicoclassificatie

Aangemaakt op 18 mei 2011 om 13h37 (51883479)

Ingenieursbureau Oesterbaai B.V. **SCA-code: 02-D020034.01**

Deze risicoclassificatie maakt onverbrekelijk onderdeel uit van het asbestinventarisatierapport [02-D020034-PAM-22867]; het inventarisatiebureau verklaart dat de invoer geheel overeenkomt met de werkelijke bronsituatie.

Identificatie

Projectcode	PAM-22867
Beschrijving	Van Oord - FFPV JAn Steen, Moerdijk
Bronnaam	Source 02, 03, 05, 06, 07, 08, 10, 11, 15, 18, 19, 20, 30, 31, 32, 34 and 43
Broncode	OB
Bronbeschrijving	Gasket

Productspecificatie

Situatie	A Gebouw/object sanering professioneel
Binnen / buiten	Binnen
Materiaal	Pakking
Product	pakking (algemeen)
Hechtgebondenheid	Niet-hechtgebonden
Soorten en % asbest	Chrysotile 30-60%
Analysecertificaatnr.	1384674
Productspecificatie	Overige pakkingen
Activiteit	overig (als geheel verwijderen niet mogelijk is)

Risicoklassen

Risicoklasse handeling	2
Protocol handeling	SC-530, risicoklasse 2
Risicoklasse eindcontrole	2
Protocol eindcontrole	NEN 2990

Werkplanelementen

Afscherming werkgebied Containment

Voorafgaand aan de werkzaamheden dient een containment te worden aangelegd conform SC-530 Bijlage B (Technische Uitvoering)

Persoonlijke bescherming Afhankelijke adembescherming

- Tijdens de werkzaamheden dient een volgelaatsmasker P3 met aangeblazen lucht te worden gedragen.

Beschrijving werkmethode algemeen:

- De asbestverwijderingswerkzaamheden dienen te worden uitgevoerd in overeenstemming met de op het formulier aangegeven specificaties en omstandigheden. Te allen tijde dient vezelemissie zoveel mogelijk te worden beperkt.
- Voorafgaand aan de werkzaamheden dient een compleet werkplan te worden opgesteld conform de SC-530 Bijlage G (Werkplan).
- De werkzaamheden dienen te worden uitgevoerd conform SC-530 Bijlage B (Technische Uitvoering).

Beschrijving eindcontrole:

Er dient een eindcontrole door een door RvA geaccrediteerde (ISO 17020) inspectie-instelling te worden uitgevoerd volgens NEN 2990, onderdeel visuele inspectie en onderdeel luchtmetingen.

SMA-rt 2009-APR Risicoclassificatie

Aangemaakt op 18 mei 2011 om 13h37 (51883479)

Ingenieursbureau Oesterbaai B.V. **SCA-code: 02-D020034.01**

Deze risicoclassificatie maakt onverbrekelijk onderdeel uit van het asbestinventarisatierapport [02-D020034-PAM-22867]; het inventarisatiebureau verklaart dat de invoer geheel overeenkomt met de werkelijke bronsituatie.

Identificatie

Projectcode	PAM-22867
Beschrijving	Van Oord - FFPV JAn Steen, Moerdijk
Bronnaam	Source 12, 13 and 14
Broncode	OB
Bronbeschrijving	Brake pad

Productspecificatie

Situatie	A Gebouw/object sanering professioneel
Binnen / buiten	Binnen
Materiaal	Frictiemateriaal
Product	remvoering
Hechtgebondenheid	Hechtgebonden
Soorten en % asbest	Chrysotile 5-10%
Analysecertificaatnr.	1384674
Productspecificatie	Remvoeringen, schijfremblokken, koppelingplaten
Activiteit	overig (als geheel verwijderen niet mogelijk is)

Risicoklassen

Risicoklasse handeling	2
Protocol handeling	SC-530, risicoklasse 2
Risicoklasse eindcontrole	2
Protocol eindcontrole	NEN 2990

Werkplanelementen

Afscherming werkgebied Afbakenen / markeren

Voorafgaand aan de werkzaamheden dient de lokatie te worden afgebakend, afgeschermd en gemarkeerd conform SC-530 Bijlage B (Technische Uitvoering).

Persoonlijke bescherming Afhankelijke adembescherming

- Tijdens de werkzaamheden dient een volgelaatsmasker P3 met aangeblazen lucht te worden gedragen.

Beschrijving werkmethode algemeen:

- De asbestverwijderingswerkzaamheden dienen te worden uitgevoerd in overeenstemming met de op het formulier aangegeven specificaties en omstandigheden. Te allen tijde dient vezelemissie zoveel mogelijk te worden beperkt.
- Voorafgaand aan de werkzaamheden dient een compleet werkplan te worden opgesteld conform de SC-530 Bijlage G (Werkplan).
- De werkzaamheden dienen te worden uitgevoerd conform SC-530 Bijlage B (Technische Uitvoering).

Beschrijving eindcontrole:

Er dient een eindcontrole door een door RvA geaccrediteerde (ISO 17020) inspectie-instelling te worden uitgevoerd volgens NEN 2990, onderdeel visuele inspectie en onderdeel luchtmetingen.

SMA-rt 2009-APR Risicoclassificatie

Aangemaakt op 18 mei 2011 om 13h37 (51883479)

Ingenieursbureau Oesterbaai B.V. **SCA-code: 02-D020034.01**

Deze risicoclassificatie maakt onverbrekelijk onderdeel uit van het asbestinventarisatierapport [02-D020034-PAM-22867]; het inventarisatiebureau verklaart dat de invoer geheel overeenkomt met de werkelijke bronsituatie.

Identificatie

Projectcode	PAM-22867
Beschrijving	Van Oord - FFPV JAn Steen, Moerdijk
Bronnaam	Source 24 and 26
Broncode	OB
Bronbeschrijving	Gasket

Productspecificatie

Situatie	A Gebouw/object sanering professioneel
Binnen / buiten	Binnen
Materiaal	Pakking
Product	pakking (algemeen)
Hechtgebondenheid	Niet-hechtgebonden
Soorten en % asbest	Chrysotile 30-60%
Analysecertificaatnr.	1384674
Productspecificatie	Overige pakkingen
Activiteit	los materiaal of object/constructie/installatie als geheel verwijderen

Omstandigheden

- De toepassing (materiaal, object, constructie, installatie) wordt als geheel verwijderd waarbij geen bewerkingen aan het asbesthoudende materiaal nodig zijn.

Risicoklassen

Risicoklasse handeling	1
Protocol handeling	SC-530, risicoklasse 1
Risicoklasse eindcontrole	1
Protocol eindcontrole	NEN 2990 module visuele inspectie

Werkplanelementen

Afscherming werkgebied Afbakenen / markeren

De plaatsen waar asbest wordt verwijderd of onderhoud wordt gepleegd dienen duidelijk te zijn afgebakend en gemarkeerd. De afbakening dient met waarschuwingsborden en afzettingslinten te geschieden.

Persoonlijke bescherming Halfgelaatsmasker

- Tijdens de werkzaamheden dient beschermende kleding te worden gedragen geschikt voor het werken met asbest; deze kan bestaan uit een afspoelbare (vinyl) overall en afwasbaar schoeisel cq veiligheidslaarsen of uit wegwerpoverschoenen en -overall.
- Tijdens de werkzaamheden dient bij voorkeur een halfgelaatsmasker P3 of P3 disposable masker te worden gedragen.

Beschrijving werkmethode algemeen:

- Het verwijderen van asbest gebeurt via demontage.
- Aan de verwijderingsbron wordt een effectieve stofafzuiging toegepast.
- Het te verwijderen materiaal wordt geïmpregneerd of bevochtigd; indien hiermee een gevaarlijk situatie ontstaat, kan van deze maatregel worden afgezien. Het materiaal kan ook vooraf (deels) worden ingepakt in plastic.
- Het asbest dient zodanig te worden verwijderd dat geen restdelen in het werkgebied kunnen achterblijven.
- Indien de vloer bestaat uit ruwe of moeilijk reinigbare oppervlakken dek de vloer met plastic folie af.
- Verzamel het asbesthoudende afval zo spoedig mogelijk na verwijdering en verpak het in daarvoor geschikte en luchtdicht afgesloten verpakking voorzien van een asbestgevarensticker en voer het afval af.
- Reinig het gebruikte gereedschap na afloop grondig of verpak het luchtdicht in een stoot- en scheurvaste verpakking voorzien van een asbestgevarensticker.
- Controleer de directe omgeving op aanwezigheid van restanten; indien nodig wordt nogmaals gestofzuigd met een stofzuiger voorzien van HEPA filter (NEN-EN 1822).

Beschrijving eindcontrole:

Er dient een visuele inspectie te worden uitgevoerd van het gehele werkgebied en conform NEN2990 hoofdstuk 'Visuele Inspectie..".

SMA-rt 2009-APR Risicoclassificatie

Aangemaakt op 18 mei 2011 om 13h37 (51883479)

Ingenieursbureau Oesterbaai B.V. **SCA-code: 02-D020034.01**

Deze risicoclassificatie maakt onverbrekelijk onderdeel uit van het asbestinventarisatierapport [02-D020034-PAM-22867]; het inventarisatiebureau verklaart dat de invoer geheel overeenkomt met de werkelijke bronsituatie.

Identificatie

Projectcode	PAM-22867
Beschrijving	Van Oord - FFPV JAn Steen, Moerdijk
Bronnaam	Source 35
Broncode	OB
Bronbeschrijving	Knife fuse

Productspecificatie

Situatie	A Gebouw/object sanering professioneel
Binnen / buiten	Binnen
Materiaal	Pakking
Product	meszekering
Hechtgebondenheid	Niet-hechtgebonden
Soorten en % asbest	Chrysotile 15-30%
Analysecertificaatnr.	1384674
Productspecificatie	Meszekering
Activiteit	los materiaal of object/constructie/installatie als geheel verwijderen

Omstandigheden

- De toepassing (materiaal, object, constructie, installatie) wordt als geheel verwijderd waarbij geen bewerkingen aan het asbesthoudende materiaal nodig zijn.

Risicoklassen

Risicoklasse handeling	1
Protocol handeling	SC-530, risicoklasse 1
Risicoklasse eindcontrole	1
Protocol eindcontrole	NEN 2990 module visuele inspectie

Werkplanelementen

Afscherming werkgebied Afbakenen / markeren

De plaatsen waar asbest wordt verwijderd of onderhoud wordt gepleegd dienen duidelijk te zijn afgebakend en gemarkeerd. De afbakening dient met waarschuwingsborden en afzettingslinten te geschieden.

Persoonlijke bescherming Halfgelaatsmasker

- Tijdens de werkzaamheden dient beschermende kleding te worden gedragen geschikt voor het werken met asbest; deze kan bestaan uit een afspoelbare (vinyl) overall en afwasbaar schoeisel cq veiligheidslaarsen of uit wegwerpoverschoenen en -overall.
- Tijdens de werkzaamheden dient bij voorkeur een halfgelaatsmasker P3 of P3 disposable masker te worden gedragen.

Beschrijving werkmethode algemeen:

- Het verwijderen van asbest gebeurt via demontage.
- Aan de verwijderingsbron wordt een effectieve stofafzuiging toegepast.
- Het te verwijderen materiaal wordt geïmpregneerd of bevochtigd; indien hiermee een gevaarlijk situatie ontstaat, kan van deze maatregel worden afgezien. Het materiaal kan ook vooraf (deels) worden ingepakt in plastic.
- Het asbest dient zodanig te worden verwijderd dat geen restdelen in het werkgebied kunnen achterblijven.
- Indien de vloer bestaat uit ruwe of moeilijk reinigbare oppervlakken dek de vloer met plastic folie af.
- Verzamel het asbesthoudende afval zo spoedig mogelijk na verwijdering en verpak het in daarvoor geschikte en luchtdicht afgesloten verpakking voorzien van een asbestgevarensticker en voer het afval af.
- Reinig het gebruikte gereedschap na afloop grondig of verpak het luchtdicht in een stoot- en scheurvaste verpakking voorzien van een asbestgevarensticker.
- Controleer de directe omgeving op aanwezigheid van restanten; indien nodig wordt nogmaals gestofzuigd met een stofzuiger voorzien van HEPA filter (NEN-EN 1822).

Beschrijving eindcontrole:

Er dient een visuele inspectie te worden uitgevoerd van het gehele werkgebied en conform NEN2990 hoofdstuk 'Visuele Inspectie..".

SMA-rt 2009-APR Risicoclassificatie

Aangemaakt op 18 mei 2011 om 13h37 (51883479)

Ingenieursbureau Oesterbaai B.V. **SCA-code: 02-D020034.01**

Deze risicoclassificatie maakt onverbrekelijk onderdeel uit van het asbestinventarisatierapport [02-D020034-PAM-22867]; het inventarisatiebureau verklaart dat de invoer geheel overeenkomt met de werkelijke bronsituatie.

Identificatie

Projectcode	PAM-22867
Beschrijving	Van Oord - FFPV JAn Steen, Moerdijk
Bronnaam	Source 39
Broncode	OB
Bronbeschrijving	Seal

Productspecificatie

Situatie	A Gebouw/object sanering professioneel
Binnen / buiten	Buiten
Materiaal	Bitumen, kit en lijm
Product	kit
Hechtgebondenheid	Hechtgebonden
Soorten en % asbest	Chrysotile 2-5%
Analysecertificaatnr.	1384674
Productspecificatie	Overige bitumen en kit
Activiteit	overig (als geheel verwijderen niet mogelijk is)

Risicoklassen

Risicoklasse handeling	2
Protocol handeling	SC-530, risicoklasse 2
Risicoklasse eindcontrole	2
Protocol eindcontrole	NEN 2990

Werkplanelementen

Afscherming werkgebied Afbakenen / markeren

Voorafgaand aan de werkzaamheden dient de lokatie te worden afgebakend, afgeschermd en gemarkeerd conform SC-530 Bijlage B (Technische Uitvoering).

Persoonlijke bescherming Afhankelijke adembescherming

- Tijdens de werkzaamheden dient een volgelaatsmasker P3 met aangeblazen lucht te worden gedragen.

Beschrijving werkmethode algemeen:

- De asbestverwijderingswerkzaamheden dienen te worden uitgevoerd in overeenstemming met de op het formulier aangegeven specificaties en omstandigheden. Te allen tijde dient vezelemissie zoveel mogelijk te worden beperkt.
- Voorafgaand aan de werkzaamheden dient een compleet werkplan te worden opgesteld conform de SC-530 Bijlage G (Werkplan).
- De werkzaamheden dienen te worden uitgevoerd conform SC-530 Bijlage B (Technische Uitvoering).

Beschrijving eindcontrole:

Er dient een eindcontrole door een door RvA geaccrediteerde (ISO 17020) inspectie-instelling te worden uitgevoerd volgens NEN 2990, onderdeel visuele inspectie.

SMA-rt 2009-APR Risicoclassificatie

Aangemaakt op 18 mei 2011 om 13h37 (51883479)

Ingenieursbureau Oesterbaai B.V. **SCA-code: 02-D020034.01**

Deze risicoclassificatie maakt onverbrekelijk onderdeel uit van het asbestinventarisatierapport [02-D020034-PAM-22867]; het inventarisatiebureau verklaart dat de invoer geheel overeenkomt met de werkelijke bronsituatie.

Identificatie

Projectcode	PAM-22867
Beschrijving	Van Oord - FFPV JAn Steen, Moerdijk
Bronnaam	Source 41 and 42
Broncode	OB
Bronbeschrijving	Gasket

Productspecificatie

Situatie	A Gebouw/object sanering professioneel
Binnen / buiten	Buiten
Materiaal	Pakking
Product	pakking (algemeen)
Hechtgebondenheid	Niet-hechtgebonden
Soorten en % asbest	Chrysotile 30-60%
Analysecertificaatnr.	1384674
Productspecificatie	Overige pakkingen
Activiteit	overig (als geheel verwijderen niet mogelijk is)

Risicoklassen

Risicoklasse handeling	2
Protocol handeling	SC-530, risicoklasse 2
Risicoklasse eindcontrole	2
Protocol eindcontrole	NEN 2990

Werkplanelementen

Afscherming werkgebied Afbakenen / markeren

Voorafgaand aan de werkzaamheden dient de lokatie te worden afgebakend, afgeschermd en gemarkeerd conform SC-530 Bijlage B (Technische Uitvoering).

Persoonlijke bescherming Afhankelijke adembescherming

- Tijdens de werkzaamheden dient een volgelaatsmasker P3 met aangeblazen lucht te worden gedragen.

Beschrijving werkmethode algemeen:

- De asbestverwijderingswerkzaamheden dienen te worden uitgevoerd in overeenstemming met de op het formulier aangegeven specificaties en omstandigheden. Te allen tijde dient vezelemissie zoveel mogelijk te worden beperkt.
- Voorafgaand aan de werkzaamheden dient een compleet werkplan te worden opgesteld conform de SC-530 Bijlage G (Werkplan).
- De werkzaamheden dienen te worden uitgevoerd conform SC-530 Bijlage B (Technische Uitvoering).

Beschrijving eindcontrole:

Er dient een eindcontrole door een door RvA geaccrediteerde (ISO 17020) inspectie-instelling te worden uitgevoerd volgens NEN 2990, onderdeel visuele inspectie.

Hazmat Samples Documentation

Sample No.	Location	Material Use	Material Type	Analysis required
G JST 001	01-Bridge	Window seal	Rubber	PCB
G JST 002	01-Bridge	Flooring	Rubber	PCB
G JST 003	01-Bridge	Bulkhead	Plastic	PCB
G JST 004	01-Bridge	Door sealing	Rubber	PCB
G JST 005	01-Bridgewing PS	Coating	Paint green	Pb, Cd, Cr
G JST 006	01-Bridgewing PS	Coating	Paint White	Pb, Cd, Cr
G JST 007	01-Bridge Frontconsole	Cabling	Wipe	PCB
G JST 008	01-Bridge	Solarscreen	Plastic	PFOS
G JST 009	01-Bridge	Curtain	Fabric layers	PFOS
G JST 010	02-X Deck	Cabling	Wipe	PCB
G JST 011	01-Bridge	Flooring-Red	Rubber	PCB
G JST 012	02-X deck	Coating	Paint Grey/Red	Pb, Cd, Cr
G JST 013	Not used			
G JST 014	Not used			
G JST 015	01-Bridge Stairs SB	Coating	Paint-Black	Pb, Cd, Cr
G JST 016	00-Top Deck	Coating	Paint-White	Pb, Cd, Cr
G JST 017	00-Top Deck	Coating	Paint-Orange	Pb, Cd, Cr
G JST 018	00-Top Deck	Coating	Paint-Yellow	Pb, Cd, Cr
G JST 019	00-Top Deck	Coating	Paint-Green	Pb, Cd, Cr
G JST 020	00-Top Deck	Cable+sealing	Wipe	PCB
G JST 021	03-A Deck Stairs	Flooring	Plastic	PCB
G JST 022	03-A Deck Handrail stairs	Coating	Paint-Red	Pb, Cd, Cr
G JST 023	03-Captain dayroom	Carpet	Fabric	PFOS / HBCDD
G JST 024	Not used			
G JST 025	03-Captain office	Carpet	Fabric	PFOS / HBCDD
G JST 026	03-Alley	Flooring	Plastic	PCB
G JST 027	Not used			
G JST 028	03-Meeting/day room	Flooring/laminate	Plastic	PFOS / HCBDD
G JST 029	Not used			
G JST 030	Not used			
G JST 031	04-Bedroom	Window seal	Rubber	PCB

G JST 032	04-Crew	Wall panel	Plastic	PCB
G JST 033	04-Crew	Carpet	Fabric-Green	PFOS / HBCDD
G JST 034	05-Galley	Floor	Paint-Blue	Pb, Cd, Cr
G JST 035	05-Cold stores	Wall Insulation	Foam	ODS
G JST 036	07-ER	Hydraulic oil	Oil	PCB
G JST 037	06-D Deck Winch room	Cable	Wipe	PCB
G JST 038	06-D Deck Winch room	Lagging	Foam/plastic	PFOS
G JST 039	06-D Deck Winch room	Hatch cover sealing	Rubber	PCB
G JST 040	Not used			
G JST 041	Not used			
G JST 042	07-Tank top Bow thruster room	Matting	Rubber	PCB
G JST 043	07-Tank top Bow thruster room	Lagging	Insulation fabric	PCB / PFOS
G JST 044	07-Tank top Bow thruster room	Cables	Wipe	PCB
G JST 045	07- seawater cooler	Sealing	Rubber	PCB
G JST 046	07-Tank opening (3)	Sealing	Rubber	PCB
G JST 047	07-ER Hydraulic Space	Pipe hanger	Plastic	PCB
G JST 048	Deck	Coating	Paint-Blue	Pb, Cd, Cr
G JST 049	Deck	Coating	Paint-Orange	Pb, Cd, Cr
G JST 050	Deck	Grid flooring	Plastic	PFOS

UCL
IM AUFTRAG DER ZUKUNFT

UCL Umwelt Control Labor GmbH // Köpenicker Str. 59 // 24111 Kiel // Deutschland

Sea2cradle B. V.
- Mr. Wouter Rozenveld -
Scheepmakershaven 59
3011 VD ROTTERDAM
NIEDERLANDE

UCL Umwelt Control Labor GmbH
Standort Kiel // Köpenicker Str.59
24111 Kiel // Deutschland
Kai Windeler
T 04316964110
F 0431698787
kai.windeler@ucl-labor.de

Report-No.: 17-50784/1

Sample Matrix: 36 x Material Sample, 5 x Swipe Sample, 1 x Oil
Client / Customer ID: Sea2cradle B. V., Scheepmakershaven 59, 3011 VD Rotterdam, Niederlande / 61422
Sampling on / by: - / Auftraggeber
Delivery on / by: 09.10.2017 / TNT
Testing period: 09.10.2017 - 16.10.2017

Parameter	Sample-ID / Sample-No. / Unit	G JST 001 / 17-50784-001	G JST 002 / 17-50784-002	G JST 003 / 17-50784-003		Method
PCB						
PCB-028	mg/kg OS	<0,300	<0,200	<0,200		*DIN 38414 S20;KI*
PCB-052	mg/kg OS	<0,300	<0,200	<0,200		*DIN 38414 S20;KI*
PCB-101	mg/kg OS	<0,300	<0,200	<0,200		*DIN 38414 S20;KI*
PCB-118	mg/kg OS	<0,300	<0,200	<0,200		*DIN 38414 S20;KI*
PCB-138	mg/kg OS	<0,300	<0,200	<0,200		*DIN 38414 S20;KI*
PCB-153	mg/kg OS	<0,300	<0,200	<0,200		*DIN 38414 S20;KI*
PCB-180	mg/kg OS	<0,300	<0,200	<0,200		*DIN 38414 S20;KI*
sum det. PCB-6	mg/kg OS	0	0	0		*DIN 38414 S20;KI*
sum of det. PCB total	mg/kg OS	0	0	0		*DIN 38414 S20;KI*

n.b. = not determinable n.a. = not analyzed ° = not accredits FV=Outsourcing UA = Subcontract AG=Customers data + = carried out
site identifier (letters postpositioned the standard method): H=Hannover, KI=Kiel, L=Lünen, HE=Heide

Parameter	Sample-ID / Sample-No. / Unit	G JST 004 / 17-50784-004	G JST 005 / 17-50784-005	G JST 006 / 17-50784-006		Method
PCB						
PCB-028	mg/kg OS	<0,200				*DIN 38414 S20;KI*
PCB-052	mg/kg OS	<0,200				*DIN 38414 S20;KI*
PCB-101	mg/kg OS	<0,200				*DIN 38414 S20;KI*
PCB-118	mg/kg OS	<0,200				*DIN 38414 S20;KI*
PCB-138	mg/kg OS	<0,200				*DIN 38414 S20;KI*
PCB-153	mg/kg OS	<0,200				*DIN 38414 S20;KI*
PCB-180	mg/kg OS	<0,200				*DIN 38414 S20;KI*
sum det. PCB-6	mg/kg OS	0				*DIN 38414 S20;KI*

Durch die DAkkS nach DIN EN ISO/IEC 17025 akkreditiertes Prüflaboratorium und bekanntgegebene Messstelle nach § 29b Bundesimmissionsschutzgesetz.
Die Akkreditierung gilt für die in der Urkunde aufgeführten Prüfverfahren. Die Ergebnisse beziehen sich ausschließlich auf den Prüfgegenstand.
Die Veröffentlichung und Vervielfältigung unserer Prüfberichte sowie deren Verwendung zu Werbezwecken bedürfen- auch auszugsweise - unserer schriftlichen Genehmigung.

Parameter	**Sample-ID** Sample-No. Unit	**G JST 004** 17-50784-004	**G JST 005** 17-50784-005	**G JST 006** 17-50784-006		*Method*
sum of det. PCB total	mg/kg OS	0				*DIN 38414 S20;KI*
Analysis relate to dry residue 105°C						
Lead	mg/kg OS		225	34,2		*DIN EN ISO 11885;KI*
Cadmium	mg/kg OS		<0,4	<0,4		*DIN EN ISO 11885;KI*
Chromium total	mg/kg OS		22,1	15,7		*DIN EN ISO 11885;KI*
Sample preparation						
acid digestion			+	+		*DIN EN 13346 (S7a);KI*

n.b. = not determinable n.a. = not analyzed ° = not accredits FV=Outsourcing UA = Subcontract AG=Customers data + = carried out
site identifier (letters postpositioned the standard method): H=Hannover, KI=Kiel, L=Lünen, HE=Heide

Parameter	**Sample-ID** Sample-No. Unit	**G JST 008** 17-50784-008	**G JST 009** 17-50784-009	**G JST 011** 17-50784-011		*Method*
PCB						
PCB-028	mg/kg OS			<0,200		*DIN 38414 S20;KI*
PCB-052	mg/kg OS			<0,200		*DIN 38414 S20;KI*
PCB-101	mg/kg OS			<0,200		*DIN 38414 S20;KI*
PCB-118	mg/kg OS			<0,200		*DIN 38414 S20;KI*
PCB-138	mg/kg OS			<0,200		*DIN 38414 S20;KI*
PCB-153	mg/kg OS			<0,200		*DIN 38414 S20;KI*
PCB-180	mg/kg OS			<0,200		*DIN 38414 S20;KI*
sum det. PCB-6	mg/kg OS			0		*DIN 38414 S20;KI*
sum of det. PCB total	mg/kg OS			0		*DIN 38414 S20;KI*
PFT						
Perfluorooctanesulfonic acid (PFOS)	mg/kg OS	<1	<0,02			*inAnl.DIN 38414-14 (S14);KI*

n.b. = not determinable n.a. = not analyzed ° = not accredits FV=Outsourcing UA = Subcontract AG=Customers data + = carried out
site identifier (letters postpositioned the standard method): H=Hannover, KI=Kiel, L=Lünen, HE=Heide

Parameter	**Sample-ID** Sample-No. Unit	**G JST 012** 17-50784-012	**G JST 015** 17-50784-013	**G JST 016** 17-50784-014		*Method*
Analysis relate to dry residue 105°C						
Lead	mg/kg OS	1680	4540	33200		*DIN EN ISO 11885;KI*
Cadmium	mg/kg OS	3,99	<0,4	0,955		*DIN EN ISO 11885;KI*
Chromium total	mg/kg OS	61,7	42,8	1820		*DIN EN ISO 11885;KI*
Sample preparation						
acid digestion		+	+	+		*DIN EN 13346 (S7a);KI*

n.b. = not determinable n.a. = not analyzed ° = not accredits FV=Outsourcing UA = Subcontract AG=Customers data + = carried out
site identifier (letters postpositioned the standard method): H=Hannover, KI=Kiel, L=Lünen, HE=Heide

Parameter / **Sample-ID** / Sample-No. / Unit		**G JST 017**	**G JST 018**	**G JST 019**		*Method*
		17-50784-015	17-50784-016	17-50784-017		
Analysis relate to dry residue 105°C						
Lead	mg/kg OS	61100	115000	33600		*DIN EN ISO 11885;KI*
Cadmium	mg/kg OS	2,25	<0,4	<0,4		*DIN EN ISO 11885;KI*
Chromium total	mg/kg OS	9720	17500	553		*DIN EN ISO 11885;KI*
Sample preparation						
acid digestion		+	+	+		*DIN EN 13346 (S7a);KI*

n.b. = not determinable n.a. = not analyzed ° = not accredits FV=Outsourcing UA = Subcontract AG=Customers data + = carried out
site identifier (letters postpositioned the standard method): H=Hannover, KI=Kiel, L=Lünen, HE=Heide

Parameter / **Sample-ID** / Sample-No. / Unit		**G JST 021**	**G JST 022**	**G JST 023**		*Method*
		17-50784-019	17-50784-020	17-50784-021		
PCB						
PCB-028	mg/kg OS	<0,100				*DIN 38414 S20;KI*
PCB-052	mg/kg OS	<0,100				*DIN 38414 S20;KI*
PCB-101	mg/kg OS	<0,100				*DIN 38414 S20;KI*
PCB-118	mg/kg OS	<0,100				*DIN 38414 S20;KI*
PCB-138	mg/kg OS	<0,100				*DIN 38414 S20;KI*
PCB-153	mg/kg OS	<0,100				*DIN 38414 S20;KI*
PCB-180	mg/kg OS	<0,100				*DIN 38414 S20;KI*
sum det. PCB-6	mg/kg OS	0				*DIN 38414 S20;KI*
sum of det. PCB total	mg/kg OS	0				*DIN 38414 S20;KI*
PFT						
Perfluorooctanesulfonic acid (PFOS)	mg/kg OS			<0,01		*inAnl.DIN 38414-14 (S14);KI*
Bromierte Flammschutzmittel						
Hexabromcyclododecan [HBCDD]	mg/kg OS			<10,0		*analog DIN ISO 10382;KI*
Analysis relate to dry residue 105°C						
Lead	mg/kg OS		15300			*DIN EN ISO 11885;KI*
Cadmium	mg/kg OS		<0,4			*DIN EN ISO 11885;KI*
Chromium total	mg/kg OS		3090			*DIN EN ISO 11885;KI*
Sample preparation						
acid digestion			+			*DIN EN 13346 (S7a);KI*

n.b. = not determinable n.a. = not analyzed ° = not accredits FV=Outsourcing UA = Subcontract AG=Customers data + = carried out
site identifier (letters postpositioned the standard method): H=Hannover, KI=Kiel, L=Lünen, HE=Heide

Parameter	**Sample-ID** Sample-No. Unit	**G JST 025** 17-50784-022	**G JST 026** 17-50784-023	**G JST 028** 17-50784-024		*Method*
PCB						
PCB-028	mg/kg OS		<0,300			*DIN 38414 S20;KI*
PCB-052	mg/kg OS		<0,300			*DIN 38414 S20;KI*
PCB-101	mg/kg OS		<0,300			*DIN 38414 S20;KI*
PCB-118	mg/kg OS		<0,300			*DIN 38414 S20;KI*
PCB-138	mg/kg OS		<0,300			*DIN 38414 S20;KI*
PCB-153	mg/kg OS		<0,300			*DIN 38414 S20;KI*
PCB-180	mg/kg OS		<0,300			*DIN 38414 S20;KI*
sum det. PCB-6	mg/kg OS		0			*DIN 38414 S20;KI*
sum of det. PCB total	mg/kg OS		0			*DIN 38414 S20;KI*
PFT						
Perfluorooctanesulfonic acid (PFOS)	mg/kg OS	<0,01		<0,01		*inAnl.DIN 38414-14 (S14);KI*
Bromierte Flammschutzmittel						
Hexabromcyclododecan [HBCDD]	mg/kg OS	<10,0		<10,0		*analog DIN ISO 10382;KI*

n.b. = not determinable n.a. = not analyzed ° = not accredits FV=Outsourcing UA = Subcontract AG=Customers data + = carried out
site identifier (letters postpositioned the standard method): H=Hannover, KI=Kiel, L=Lünen, HE=Heide

Comments
inAnl.DIN 38414-14 (S14)
022: Gehalt an PFOA: 0,025mg/kg

Parameter	**Sample-ID** Sample-No. Unit	**G JST 031** 17-50784-025	**G JST 032** 17-50784-026	**G JST 033** 17-50784-027		*Method*
PCB						
PCB-028	mg/kg OS	<0,080	<0,300			*DIN 38414 S20;KI*
PCB-052	mg/kg OS	<0,080	<0,300			*DIN 38414 S20;KI*
PCB-101	mg/kg OS	<0,080	<0,300			*DIN 38414 S20;KI*
PCB-118	mg/kg OS	<0,080	<0,300			*DIN 38414 S20;KI*
PCB-138	mg/kg OS	<0,080	<0,300			*DIN 38414 S20;KI*
PCB-153	mg/kg OS	<0,080	<0,300			*DIN 38414 S20;KI*
PCB-180	mg/kg OS	<0,080	<0,300			*DIN 38414 S20;KI*
sum det. PCB-6	mg/kg OS	0	0			*DIN 38414 S20;KI*
sum of det. PCB total	mg/kg OS	0	0			*DIN 38414 S20;KI*
PFT						
Perfluorooctanesulfonic acid (PFOS)	mg/kg OS			<0,02		*inAnl.DIN 38414-14 (S14);KI*
Bromierte Flammschutzmittel						
Hexabromcyclododecan [HBCDD]	mg/kg OS			<10,0		*analog DIN ISO 10382;KI*

n.b. = not determinable n.a. = not analyzed ° = not accredits FV=Outsourcing UA = Subcontract AG=Customers data + = carried out
site identifier (letters postpositioned the standard method): H=Hannover, KI=Kiel, L=Lünen, HE=Heide

Parameter	**Sample-ID** / Sample-No. / Unit	**G JST 034** / 17-50784-028	**G JST 035** / 17-50784-029	**G JST 038** / 17-50784-032		*Method*
Analysis of Original sample						
CFC						
R 11 (Trichlorfluormethan)	mg/kg OS		12800			*DIN ISO 22155;KI*
R 113 (Trichlortrifluorethan)	mg/kg OS		<10			*DIN ISO 22155;KI*
R 22 (Chlordifluormethan)	mg/kg OS		<10			*DIN ISO 22155;KI*
R 21 (Dichlorfluormethan)	mg/kg OS		<10			*DIN ISO 22155;KI*
R 12 (Dichlordifluormethan)	mg/kg OS		19,3			*DIN ISO 22155;KI*
R 114 (Dichlortetrafluorethan)	mg/kg OS		<10			*DIN ISO 22155;KI*
PFT						
Perfluorooctanesulfonic acid (PFOS)	mg/kg OS			<0,02		*inAnl.DIN 38414-14 (S14);KI*
Analysis relate to dry residue 105°C						
Lead	mg/kg OS	2,72				*DIN EN ISO 11885;KI*
Cadmium	mg/kg OS	<0,4				*DIN EN ISO 11885;KI*
Chromium total	mg/kg OS	3,38				*DIN EN ISO 11885;KI*
Sample preparation						
acid digestion		+				*DIN EN 13346 (S7a);KI*

n.b. = not determinable n.a. = not analyzed ° = not accredits FV=Outsourcing UA = Subcontract AG=Customers data + = carried out
site identifier (letters postpositioned the standard method): H=Hannover, KI=Kiel, L=Lünen, HE=Heide

Parameter	**Sample-ID** / Sample-No. / Unit	**G JST 039** / 17-50784-033	**G JST 042** / 17-50784-034	**G JST 043** / 17-50784-035		*Method*
PCB						
PCB-028	mg/kg OS	<0,200	<0,100	<0,02		*DIN 38414 S20;KI*
PCB-052	mg/kg OS	<0,200	<0,100	<0,02		*DIN 38414 S20;KI*
PCB-101	mg/kg OS	<0,200	<0,100	<0,02		*DIN 38414 S20;KI*
PCB-118	mg/kg OS	<0,200	<0,100	<0,02		*DIN 38414 S20;KI*
PCB-138	mg/kg OS	<0,200	<0,100	<0,02		*DIN 38414 S20;KI*
PCB-153	mg/kg OS	<0,200	<0,100	<0,02		*DIN 38414 S20;KI*
PCB-180	mg/kg OS	<0,200	<0,100	<0,02		*DIN 38414 S20;KI*
sum det. PCB-6	mg/kg OS	0	0	0		*DIN 38414 S20;KI*
sum of det. PCB total	mg/kg OS	0	0	0		*DIN 38414 S20;KI*
PFT						
Perfluorooctanesulfonic acid (PFOS)	mg/kg OS			<0,03		*inAnl.DIN 38414-14 (S14);KI*

n.b. = not determinable n.a. = not analyzed ° = not accredits FV=Outsourcing UA = Subcontract AG=Customers data + = carried out
site identifier (letters postpositioned the standard method): H=Hannover, KI=Kiel, L=Lünen, HE=Heide

Parameter	**Sample-ID** / Sample-No. / Unit	**G JST 045** / 17-50784-037	**G JST 046** / 17-50784-038	**G JST 047** / 17-50784-039		*Method*
PCB						
PCB-028	mg/kg OS	<0,900	<0,400	<0,050		*DIN 38414 S20;KI*
PCB-052	mg/kg OS	<0,090	<0,400	<0,050		*DIN 38414 S20;KI*
PCB-101	mg/kg OS	<0,090	<0,400	<0,050		*DIN 38414 S20;KI*
PCB-118	mg/kg OS	<0,090	<0,400	<0,050		*DIN 38414 S20;KI*
PCB-138	mg/kg OS	<0,090	<0,400	<0,050		*DIN 38414 S20;KI*
PCB-153	mg/kg OS	<0,090	<0,400	<0,050		*DIN 38414 S20;KI*
PCB-180	mg/kg OS	<0,090	<0,400	<0,050		*DIN 38414 S20;KI*
sum det. PCB-6	mg/kg OS	0	0	0		*DIN 38414 S20;KI*
sum of det. PCB total	mg/kg OS	0	0	0		*DIN 38414 S20;KI*

n.b. = not determinable n.a. = not analyzed ° = not accredits FV=Outsourcing UA = Subcontract AG=Customers data + = carried out
site identifier (letters postpositioned the standard method): H=Hannover, KI=Kiel, L=Lünen, HE=Heide

Parameter	**Sample-ID** / Sample-No. / Unit	**G JST 048** / 17-50784-040	**G JST 049** / 17-50784-041	**G JST 050** / 17-50784-042		*Method*
PFT						
Perfluorooctanesulfonic acid (PFOS)	mg/kg OS			<0,01		*inAnl.DIN 38414-14 (S14);KI*
Analysis relate to dry residue 105°C						
Lead	mg/kg OS	20,2	104000			*DIN EN ISO 11885;KI*
Cadmium	mg/kg OS	<0,4	<0,4			*DIN EN ISO 11885;KI*
Chromium total	mg/kg OS	336	20300			*DIN EN ISO 11885;KI*
Sample preparation						
acid digestion		+	+			*DIN EN 13346 (S7a);KI*

n.b. = not determinable n.a. = not analyzed ° = not accredits FV=Outsourcing UA = Subcontract AG=Customers data + = carried out
site identifier (letters postpositioned the standard method): H=Hannover, KI=Kiel, L=Lünen, HE=Heide

Parameter / **Sample-ID** / Sample-No. / Unit		**G JST 007** / 17-50784-007	**G JST 010** / 17-50784-010	**G JST 020** / 17-50784-018		*Method*
Analysis of Original sample						
PCB						
PCB-028	µg abs	<0,01	<0,01	<0,020		*DIN EN 15308;KI*
PCB-052	µg abs	<0,01	<0,01	<0,020		*DIN EN 15308;KI*
PCB-101	µg abs	<0,01	<0,01	<0,020		*DIN EN 15308;KI*
PCB-118	µg abs	<0,01	<0,01	<0,020		*DIN EN 15308;KI*
PCB-138	µg abs	<0,01	<0,01	<0,020		*DIN EN 15308;KI*
PCB-153	µg abs	<0,01	<0,01	<0,020		*DIN EN 15308;KI*
PCB-180	µg abs	<0,01	<0,01	<0,020		*DIN EN 15308;KI*
sum det. PCB-6	µg abs	0	0	0		*DIN EN 15308;KI*
sum of det. PCB total	µg abs	0	0	0		*DIN EN 15308;KI*

n.b. = not determinable n.a. = not analyzed ° = not accredits FV=Outsourcing UA = Subcontract AG=Customers data + = carried out
site identifier (letters postpositioned the standard method): H=Hannover, KI=Kiel, L=Lünen, HE=Heide

Parameter / **Sample-ID** / Sample-No. / Unit		**G JST 037** / 17-50784-031	**G JST 044** / 17-50784-036			*Method*
Analysis of Original sample						
PCB						
PCB-028	µg abs	<0,01	<0,01			*DIN EN 15308;KI*
PCB-052	µg abs	<0,01	<0,01			*DIN EN 15308;KI*
PCB-101	µg abs	<0,01	<0,01			*DIN EN 15308;KI*
PCB-118	µg abs	<0,01	<0,01			*DIN EN 15308;KI*
PCB-138	µg abs	<0,01	<0,01			*DIN EN 15308;KI*
PCB-153	µg abs	<0,01	<0,01			*DIN EN 15308;KI*
PCB-180	µg abs	<0,01	<0,01			*DIN EN 15308;KI*
sum det. PCB-6	µg abs	0	0			*DIN EN 15308;KI*
sum of det. PCB total	µg abs	0	0			*DIN EN 15308;KI*

n.b. = not determinable n.a. = not analyzed ° = not accredits FV=Outsourcing UA = Subcontract AG=Customers data + = carried out
site identifier (letters postpositioned the standard method): H=Hannover, KI=Kiel, L=Lünen, HE=Heide

Parameter / **Sample-ID** / Sample-No. / Unit		**G JST 036** / 17-50784-030				*Method*
Analysis of Original sample						
PCB						
PCB-028	mg/kg OS	<0,1				*DIN EN 12766-1/-2;L*
PCB-052	mg/kg OS	<0,1				*DIN EN 12766-1/-2;L*
PCB-101	mg/kg OS	<0,1				*DIN EN 12766-1/-2;L*
PCB-118	mg/kg OS	<0,1				*DIN EN 12766-1/-2;L*
PCB-138	mg/kg OS	<0,1				*DIN EN 12766-1/-2;L*
PCB-153	mg/kg OS	<0,1				*DIN EN 12766-1/-2;L*
PCB-180	mg/kg OS	<0,1				*DIN EN 12766-1/-2;L*
sum det. PCB-6	mg/kg OS	0				*DIN EN 12766-1/-2;L*
sum of det. PCB total	mg/kg OS	0				*DIN EN 12766-1/-2;L*

n.b. = not determinable n.a. = not analyzed ° = not accredits FV=Outsourcing UA = Subcontract AG=Customers data + = carried out
site identifier (letters postpositioned the standard method): H=Hannover, KI=Kiel, L=Lünen, HE=Heide

i. A. M. Jac

16.10.2017 i.A. Dr. Martin Jacobsen (Kundenbetreuer)

Paint Documentation

INTERNATIONAL ANTI-FOULING SYSTEM CERTIFICATE

No SGP0/KSL/20091221140840

(This certificate shall be supplemented by a record of Anti-Fouling Systems)

Issued under the International Convention on the control of Harmful Anti-Fouling Systems on Ships

THE NETHERLANDS

By BUREAU VERITAS

When a Certificate has been previously issued, this Certificate replaces the Certificate dated

Name of Ship BV No : **37P181**	Distinctive Number or Letters	Port of Registry	Gross Tonnage	IMO Number
JAN STEEN	PEZV	GORINCHEM	2679	8505707

☐ An anti-fouling system controlled under Annex I has not been applied during or after construction of the ship.

☒ An anti-fouling system controlled under Annex I has been applied on this ship previously, but has been removed by fully blast to S.A. 2.0 at ST Marine shipyard on 21/11/2008.

☐ An anti-fouling system controlled under Annex I has been applied on this ship previously, but has been covered with a sealer applied by ..... on .....

☐ An anti-fouling system controlled under Annex I was applied on this ship prior to ....., but must be removed or covered with a sealer coat prior to .....

THIS IS TO CERTIFY THAT :

1. the ship has been surveyed in accordance with Regulation 1 of Annex 4 of the Convention; and

2. the survey shows that the anti-fouling system on the ship complies with the applicable requirements of Annex 1 of the Convention.

Date of completion of the survey on which this Certificate is issued 27/11/2008

Issued at SINGAPORE, on the 28 December 2009

BUREAU VERITAS

K.S. LING
By Order of the Secretary

RECORD OF ANTI-FOULING SYSTEMS

No SGP0/KSL/20091221141056

This Record shall be permanently attached to the International Anti-Fouling System Certificate.

Name of Ship BV No : **37P181**	Distinctive Number or Letters	Port of Registry	Gross Tonnage	IMO Number
JAN STEEN	PEZV	GORINCHEM	2679	8505707

Details of anti-fouling system(s) applied

Type(s) of anti-fouling system(s) used : TBT-FREE SELF POLISHING ANTIFOULING PAINT

Date(s) of application of anti-fouling system(s) : 21/11/2008

Name(s) of company(ies) and facility(ies)/location(s) where applied : HEMPEL SINGAPORE

Name(s) of anti-fouling system manufacturer(s) : HEMPEL A/S

Name(s) and colour(s) of anti-fouling system(s) : HEMPEL'S ANTIFOULING GLOBIC NCT 8190M, COLOR 62900(DARK BROWN) & 58000(RED)

Active ingredient(s) and their Chemical Abstract Services Registry Number(s) (CAS number(s)) : COPPER(1) OXIDE, 1317-39-1,COPPER PYRITHONE, 14915-37-8

Type(s) of sealer coat, if applicable : -

Name(s) and colour(s) of sealer coat applied, if applicable : -

Date of application of sealer coat : -

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

Issued at SINGAPORE, on the 28 December 2009

BUREAU VERITAS

K.S. LING
By Order of the Secretary

Endorsement of the Records

No A/02-2011

Name of Ship BV No : **37P181**	Distinctive Number or Letters	Port of Registry	Gross Tonnage	IMO Number
JAN STEEN	PEZV	GORINCHEM	2679	8505707

THIS IS TO CERTIFY that a survey required in accordance with regulation 1(1)(b) of Annex 4 to the Convention found that the ship was in compliance with the Convention

Details of anti-fouling system(s) applied

Type(s) of anti-fouling system(s) used : TBT-Free Antifouling System

Date(s) of application of anti-fouling system(s) : 14 December 2010

Name(s) of company(ies) and facility(ies)/location(s) where applied : Dry Docks World, Dubai, U.A.E.

Name(s) of anti-fouling system manufacturer(s) : HEMPEL A/S

Name(s) and colour(s) of anti-fouling system(s) : HEMPEL'S ANTIFOULING GLOBIC NCT 8190M, Colours 62900 (Dark Brown) and 58000 (Red)

Active ingredient(s) and their Chemical Abstract Services Registry Number(s) (CAS number(s)) :
- copper(1)oxide (CAS No 1317-39-1)
- copper pyrithione (CAS No 14915-37-8)

Type(s) of sealer coat, if applicable : -

Name(s) and colour(s) of sealer coat applied, if applicable : HEMPADUR 45182, Colour 25150 (Yellowish Grey)

Date of application of sealer coat : 13 December 2010

Signed : **Zoran Rankovic**
(Surveyor to BUREAU VERITAS)

Place : **Dubai, U.A.E.**
Date : **24 February 2011**

BUREAU VERITAS SURVEYORS N° PARIS 1828 DUBAI (G) REGISTRE INTERNATIONAL

Endorsement of the Records

No 2

Name of Ship BV No : **37P181**	Distinctive Number or Letters	Port of Registry	Gross Tonnage	IMO Number
JAN STEEN	PEZV	GORINCHEM	2679	8505707

THIS IS TO CERTIFY that a survey required in accordance with regulation 1(1)(b) of Annex 4 to the Convention found that the ship was in compliance with the Convention.

Details of anti-fouling system(s) applied

Type(s) of anti-fouling system(s) used : TBT-Free antifouling System

Date(s) of application of anti-fouling system(s) : 22 Oktober 2013

Name(s) of company(ies) and facility(ies)/location(s) where applied : Esbjerg Shipyard

Name(s) of anti-fouling system manufacturer(s) : HEMPEL A/S

Name(s) and colour(s) of anti-fouling system(s) : HEMPEL'S ANTIFOULING GLOBIC 9000(quality number 78900), colours 60600(brown) and 51110(red)

Active ingredient(s) and their Chemical Abstract Services Registry Number(s) (CAS number(s)) : Copper(1)oxide (CAS No.1317-39-1, Copper pyrithione (CAS No. 14915-37-8

Type(s) of sealer coat, if applicable : -

Name(s) and colour(s) of sealer coat applied, if applicable : -

Date of application of sealer coat : -

Signed : **Dick A Overkleeft**
(Surveyor to BUREAU VERITAS)

Place : **Fredericia**
Date : **22-10-2013**

Endorsement of the Records

No 3

Name of Ship BV No : **37P181**	Distinctive Number or Letters	Port of Registry	Gross Tonnage	IMO Number
JAN STEEN	PEZV	GORINCHEM	2679	8505707

THIS IS TO CERTIFY that a survey required in accordance with regulation 1(1)(b) of Annex 4 to the Convention found that the ship was in compliance with the Convention.

Details of anti-fouling system(s) applied

Type(s) of anti-fouling system(s) used : Hempel's Antifouling Globic 81900

Date(s) of application of anti-fouling system(s) : 29 January 2015

Name(s) of company(ies) and facility(ies)/location(s) where applied : S/Y REIMERSWAAL HANSWEERT, THE NETHERLANDS

Name(s) of anti-fouling system manufacturer(s) : HEMPEL A/S

Name(s) and colour(s) of anti-fouling system(s) : Hempel's Antifouling Globic 81900, COLOURS 60600 (BROWN) & 51110 (RED)

Active ingredient(s) and their Chemical Abstract Services Registry Number(s) (CAS number(s)) : copper (1) oxyde (CAS No. 1317-39-1); 4,5-dichloro-2-n-octyl-4-isothiasolin-3-one (CAS No. 64359-81-5)

Type(s) of sealer coat, if applicable : -

Name(s) and colour(s) of sealer coat applied, if applicable : -

Date of application of sealer coat : -

BUREAU VERITAS EXPERTS DE ROTTERDAM PARIS 1828 REGISTRE INTERNATIONAL

Signed : **Evgeny Zavyalov**
(Surveyor to BUREAU VERITAS)

Place : **Moerdijk, The Netherlands**
Date : **05 March 2015**

Radiation Documentation

Radiation Survey

Unit surveyed	**Jan Steen**
Date	**05-10-2017**
Location of survey	**Moerdijk, The Netherlands**
S2C Project No.	**155.17**
Name of surveyor	**R.J.M van Uffelen**
By order of	**Sea2Cradle B.V.**

Contents

1. Terms of reference
2. Equipment
3. Survey

1 Terms of reference

Whilst every care has been taken to ensure that the information provided in this survey is accurate, up-to-date and complete, Sea2Cradle does not accept any liability for any errors or omissions in the information or for any acts or omissions of any person in the handling, removal or disposal of these substances, whether done in reliance on the information in this report or otherwise.

It is stressed that the information provided in this survey is not a contractual statement of precise quantities of residues and materials on board. Any quantities given are estimates only and no guarantee of their accuracy is either given or implied.

The aim of this radiation survey to is:

A. To list all sources (provided by the ship-owner) of radioactive equipment which are part of the structure of the vessel
B. To measure the background radiation in micro Sievert / hour
C. To determine unlisted / not recorded radioactive equipment or sources which are constructed to the structure of the vessel. The radiation is measured as dose rate which represents a figure measured in micro Sievert/hour and may not exceed local threshold levels. The dose rates are measured at 0.1 meter and 1 meter distance from any (potential) source and at locations where people could be present.

For reference, instantaneous dose limits for members of the public is worldwide 1 mSv/annum (average 0.114 µSv/hr) above background levels (sources 2014: Euratom, ICRP and IAEA, US Nuclear Regulatory Commission).
Importation of ships for recycling, containing radioactive sources is in 2014 restricted at:

- China : 0.25 µSv/hr above background
- Turkey : 0.50 µSv/hr above background

When levels exceed dose limits for the public or local threshold levels, importation needs to be verified.

2 Equipment

Gamma Scout
Serial number: 067852
Measurement range: 0.01 µSv/h to 1000 µSv/h
Calibration Certificate attached.

3 SURVEY

A. List of equipment containing radioactive sources (state nil in case no sources):

Name	Marks/type	location (s)	Qty
Ionization chamber smoke detectors	Thorn MF 301	See attached list (mixed types in use, exact quantity of ionising units unknown)	<67
Instruments/signs containing gaseous tritium light sources			Nil
Instruments/signs containing radioactive painting			Nil
High intensity discharge lamps			Nil
Radioactive lighting rods			Nil
Radioactive level gauges			Nil
Radioactive dredger gauges			Nil
Radioactive conveyor gauges			Nil
Radioactive spinning pipe gauges			Nil

B. Background reading: 0.066 µSv/h
Measured at: Top deck

C. Readings throughout the vessel

Location	Dose rate (µSv/h)
00 Top Deck (Back Ground reading)	0.066
01 Bridge deck (Centre front window)	0.057
02 X Deck (SB side fore-ward)	0.048
03 A Deck (Captains dayroom)	0.083
05 Main Deck (Galley)	0.118
06 winch room	0.048
07 near centreline tanktop aft	0.057
07 Bow thruster room	0.048

Signed :

Name : R.J.M. van Uffelen
Date : 05-10-2017
Sea2Cradle

Steinbeis
- Transferzentrum
an der Hochschule Mannheim

Certificate

The GAMMA-SCOUT® unit No. 067852 was used to measure the environmental radiation for three days. The results were compared with those of a reference device and found to deviate from these by less than ± 5%.

The reference devices were measured at the Insitut für Physikalische Chemie und Radiochemie at the Hochschule Mannheim (public university for applied technology) in a dose equivalent range up to 1000 µSv/h, and determined suitable.

The reference devices are regularly checked.

The measuring performance of the GAMMA-SCOUT® unit No. 067852 can therefore be certified as being very good.

Prof. Dr. E. Foßnag

Paul-Wittsack-Straße 10 · 68163 Mannheim · Telefon (06 21) 2 92-63 16

Chubb

Chubb fire & security

Certificate number	16.011026
Date	12.01.2016
Service engineer	R.Sodimedjo / A.Timmer

Fire Detection System (Page 2)

I=Inspected / X= Fitted / R=Recharged / Rep=Repaired / Rej= Rejected / Ren= Renewed / NA= Not Applicable / ND=Not carried out

Loop	Location	Smoke detectors	Heat detectors	Push buttons	Flame detectors	Work done	Remark Nr.
1	Bridge deck	2		2		I	
2	A-Deck	9		3		I	
3	B-Deck / Staircase	3		2		I	
4	C-Deck / Galley / Mess room	3		1		I	
5	D-Deck / Laundry	4		1		I	
6	Emergency Gen. Room/Fwd. Winchroom	2		1		I	
7	Fwd. store/ECR/Engine room aft.	10		3		I	
8	Bowthruster room/Elec. workshop	3		1		I	
9	FM 220 low pressure Alarm					I	
10	FM 220 low pressure Alarm					I	
11	Aft. Deck/Bosum store/Paint store/ Lifting Equipment store/Client store	3		1		I	
12	Gym/Engine room fwd / Hydraulic room	6		2		I	
13	Aqua master room PS-SB	2				I	
14	Winchroom aft / Store engine room	2				I	
15	Extra accommodation	15		6		I	
16	Gen. on deck / Sewage unit / Ext. changing container	3				I	
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30							

Smoke detector type	Thorn MF301/Thorn MR601-m/Tyco 601P-M
Heat detector type	-
Push button type	Thorn (red)
Flame detector type	-

Remarks:
-All Remarks (if applicable) will be noted separately in service summary report

Ch-fs, Fire.det.syst.
Rev.05:RN,07.2014

Chubb Fire & Security B.V.
Marine & Offshore
Achterzeedijk 57 / Unit 57
2992 SB Barendrecht
The Netherlands
Phone +31180555222 Fax +31180555233
marine@chubbfs.nl