FOR THE BUSINESS AHEAD

BUREAU VERITAS SOLUTIONS Marine & Offshore

Inventory of Hazardous Materials
Manual Part I

Ship / Vessel name	PETROBRAS 26
Particulars of the ship	
Ship / Vessel name Flag	PANAMA
Flag	
Distinctive No. / Letters	HP8997
Distinctive No. / Letters	
Port of Registry	PANAMA
Port of Registry	
Type of vessel	Type of vessel Offshore submersible unit
Gross Tonnage	Gross Tonnage 20313
IMO Number	IMO Number 8764169
Name of Shipbuilder	Name of Shipbuilder Vyborg Shipyard
Name of Shipowner	Petrobras Netherlands B.V.
Date of delivery	Name of Shipowner 31/10/1997
IHM Inventory Number	RJN0/2023/8764169/Xw5
Revision Number	Date of delivery 5.0
IHM Inventory Number	
Revision Number	

This inventory was developed in accordance with the IMO Guidelines for the Development of the Inventory of Hazardous Materials.

The IHM has been developed to cover additional requirements of the EU Ship Recycling Regulation (EU) 1257/2013. This inventory was developed in accordance with the IMO Guidelines for the Development of the Inventory of Hazardous Materials.**Signatories**

The IHM has been develop	Prepared by: Mr Roberto Yamakied to cover additional requirements of the EU Ship Recycling Regulation (EU) 1257/2013.
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Inventory of Hazardous Materials

Foreword

This survey regarding hazardous materials was carried as described in the Guidelines for the development of the IHM, mentioned in Resolution MEPC.269(68), adopted on 15 May 2015 and with reference to the Hong Kong Convention, EMSA's Best Practice Guidance on the IHM and EU SRR 1257/2013.
The survey was conducted according to the steps below.

IHM process is the whole process of development and maintenance of an IHM throughout the operational life-cycle of the ship. It involves all the steps of developing an IHM including issuing/checking of relevant documentation (e.g. Material Declarations), sampling and analysis, verification and life-cycle management.

IHM Part I Development Process

The overall objective is to identify the presence or absence of HM contained in the equipment, systems, and/or areas on board a ship by suitable and generally accepted methods such as laboratory analysis.
Sampling methodology, Visual/Sampling Check Plan (VSCP) and on board survey performance is carried out in accordance with EMSA Guidance on IHM development.

Wherever accessible, samples of the materials suspected of containing hazardous materials were taken for testing of hazardous content. These materials were analysed by an accredited laboratory. In the analysis certificates from the laboratory, shown in the appendices, the type of hazardous material and its properties are shown.

During this inspection, all safety and appropriate HSE precautions and equipment were used such as a coverall, gloves and other PPE necessary to maintain a safe working environment. In cases where sample-taking was deemed impossible, the techniques used were recorded e.g. document referral or visual inspection. The tables on the next pages contain a summary of the hazardous materials researched, sampled and / or identified. IHM Manual Part 1 also includes a descriptive chapter summarising the hazardous material properties and typical checkpoint locations.

ties involved

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Laboratory

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Abbreviations / Terminology

Abbreviation / Term	Description
Organotin compounds	Organotin compounds include Tributyl Tins (TBT), Triphenyl Tins (TPT) and Tributyl Tin Oxide (TBTO)
PBB	Polybrominated Biphenyl
PBDE	Polybrominated Diphenyl Ethers
PCB	Polychlorinated Biphenyl
HBCDD	Hexabromocyclododecane (Brominated Flame Retardant)
PFOS	Perfluorooctane Sulfonic acid
ODS	Ozone Depleting Substance
PCN	Polychlorinated Naphthaleness
IHM	Inventory of Hazardous Materials
HM	Hazardous Materials
VSCP	Visual / Sampling Check Plan
AFS	Anti•fouling System
PCHM	Potentially containing Hazardous Material
MD	Material Declaration
SDoC	Suppliers Declaration of Conformity
SCCP	Short Chain Chlorinated Paraffin
Sb	Starboard side
Ps	Port side

Inventory of Hazardous Materials

Relevant Legislation

Below is a summary of relevant legislations and regulations.

Relevant Legislation

[1] SOLAS Chapter II-1 regulation 3-5, MSC.194(80) (May 20, 2005)
[2] Resolution MEPC.179(59) - Guidelines for the development of the IHM, adopted during the Hong Kong Convention on 17 July 2009, revoked by MEPC.269(68)
[3] IMO MSC/Circ. 1045 - Guidelines for Maintenance and monitoring of on-board materials containing asbestos, 28-05-2002
[4] RoHS - 2002/95/EC (RoHS) and all subsequent Amendments of the Directive
[5] IMO Guidelines on ship recycling - Resolution A.962(23)
[6] Regulation (EU) No. 1257/2013
[7] EMSA's Best Practice Guidance on the Inventory of Hazardous Materials
[8] MARPOL Annex VI Convention
[9] AFS Convention 2001
[10] EMSA Study of two hazardous substances (PFOS and HBCDD) included in the annexes of regulation (EU) 1257/2013 on ship recycling
[11] Hong Kong Convention

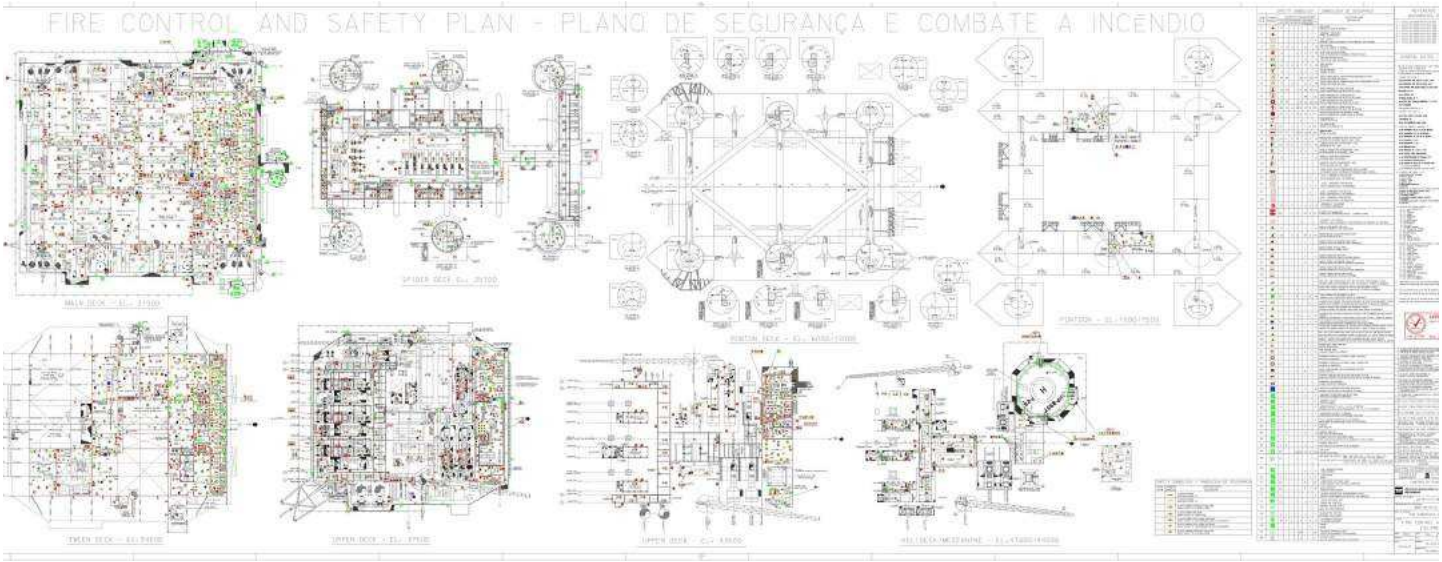
sktop research / Documentation review

The following list of technical documentation, drawings, material declarations, specifications and certificates have been used for reference in compiling this manual. An archive of all reference materials is available on-board the vessel and should be made available as an IHM archive to all external parties for review in support of this manual.

- Fire control and safety (Safety Plan)
- IAPP Supplement (IAPP certificate)
- Ships certificates and related manuals (DNV calss status)
- Lubrication oil charts (Product list)
- Ship specification (Maritime Unit Description)

sktop research / Documentation review

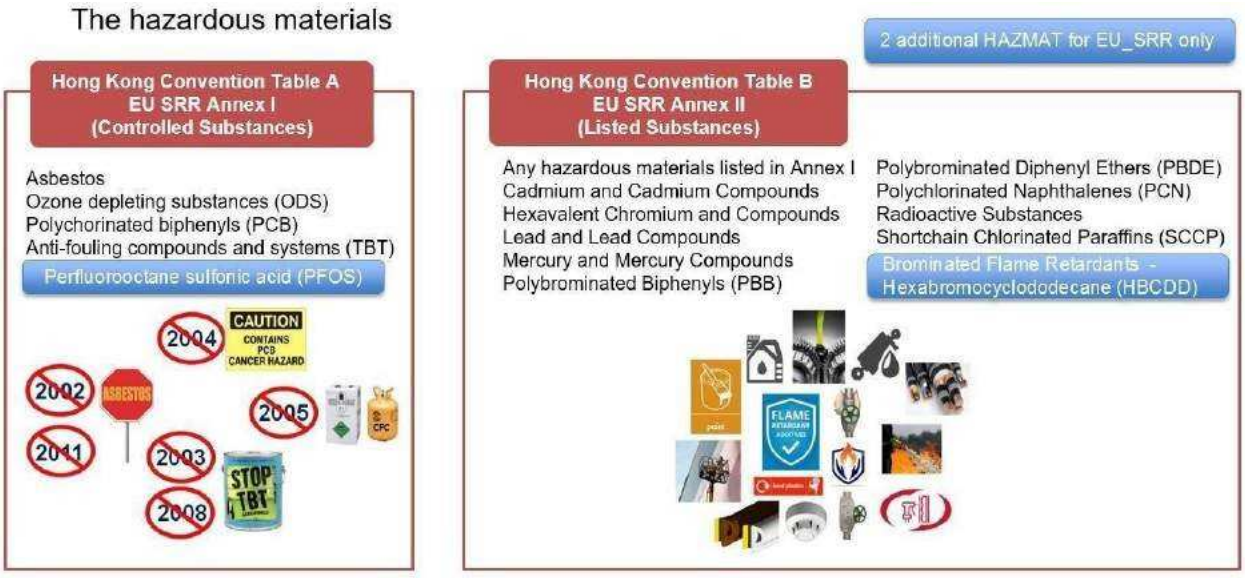
neral Arrangement drawing



IHM • Hazardous Material Summary and checkpoints

EU Ships recycling regulations (EU_SRR) specifies 15 hazardous material split into 2 categories of Annex I (Controlled substances) and Annex II (Listed substances).

Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships specifies 13 materials split into 2 categories of Table A (Controlled substances) and Table B (Listed substances).



The control measures for the 2 additional materials included in EU_SRR, are defined in the table below.

IHM • Hazardous Material Summary and checkpoints

HM	EU SRR			IMO HKC
	Control measure			Control measures
	EU ships		Non-EU ships	
	New ships	Existing ships		
PFOS	✓	✓	-	-
HBCDD	✓	-	-**	-

* After the initial preparation of the IHM, it shall be properly maintained and updated reflecting new installations containing HM referred to in Annex II of the SRR (meaning that thereafter all the HM included in Annex I and **Annex II** of the SRR should be included in the IHM).

** After the initial preparation of the IHM, it shall be properly maintained and updated reflecting new installations containing HM referred to in **Annex II** of the SRR taking into account the exemptions and transitional arrangements applicable to those materials under international law.

IHM Manual Part 1 for an existing ship, according to applicable regulations, will provide an investigation into, as a minimum, Annex I hazardous materials for EU_SRR and Table A hazardous materials for Hong Kong convention. The table above provides explanation of the exceptions and exclusions for EU and non-EU flag vessels.

Annex 2 / Table B materials will be investigated and listed, as far as is reasonable and practicable. In many cases, for an existing vessel, Annex II / Table B materials will not form part of IHM Manual Part 1 during the ships service lifecycle.

Annex II / Table B materials will instead be investigated and categorised within IHM Manual Part II (Operationally generated wastes) and IHM Manual Part III (Stores, liquids and gases sealed in the ship's machinery and equipment; and regular consumable goods). IHM Manual Parts II and III are usually prepared at a time immediately prior to the ships end of life voyage to a recycling shipyard.

The threshold values for all 15 hazardous materials are listed as follows:

IHM • Hazardous Material Summary and checkpoints

HAZARDOUS MATERIAL	THRESHOLD VALUE
Asbestos	0.1%
Ozone Depleting Substances (ODS)	No threshold value
Polychlorinated Biphenyls (PCB)	50 mg/kg
Perfluorooctane sulfonic acid (PFOS) and its derivatives (CAS No:1763-23-1) $C_8F_{17}SO_2X$ (X-OH, Metal salt (O-M +), halide, amide, and other derivatives including polymers) Examples of PFOS derivatives: Potassium perfluorooctane sulfonate (CAS No: 2795-39-3); Lithium perfluorooctane sulfonate (CAS No: 29457-72-5); Ammonium perfluorooctane sulfonate (CAS No: 29081-56-9); diethanolammonium perfluorooctane sulfonate (CAS No: 70225-14-8); tetraethylammonium perfluorooctane sulfonate (CAS No: 56773-42-3); didecyldimethylammonium perfluorooctane sulfonate (CAS No: 251099-16-8).	Concentrations of PFOS **above** 10 mg/kg (0.001% by weight) when it occurs in substances or in preparations or Concentrations of PFOS in semi-finished products or articles, or parts thereof **equal to or above** than 0.1% by weight calculated with reference to the mass of structurally or micro-structurally distinct parts that contain PFOS or For textiles or other coated materials, if the amount of PFOS is **equal to or above** than 1 µg/m^2 of the coated material.
Anti-fouling compounds and systems	2500 mg total tin/kg
Cadmium and Cadmium Compounds	100 mg/kg
Hexavalent Chromium and Hexavalent Chromium Compounds	1000 mg/kg

HAZARDOUS MATERIAL	THRESHOLD VALUE
Lead and Lead Compounds	1000 mg/kg
Mercury and Mercury Compounds	1000 mg/kg
Polybrominated Biphenyls (PBBs)	50 mg/kg
Polybrominated Diphenyl Ethers (PBDEs)	1000 mg/kg
Polychlorniated Naphthalenes (more than 3 chlorine atoms)	50 mg/kg
Radioactive Substances	No threshold value
Certain Shortchain Chlorinated Paraffins (Alkanes, C10-C13, chloro)	1%
Brominated Flame Retardant (HBCDD) EC No: 221-695-9, 247-148-4, CAS No: 3194-55-6 25637-99-4, alpha-hexabromocyclododecane CAS No: 134237-50-6, beta-hexabromocyclododecane CAS No: 134237-51-7, gamma-hexabromocyclododecane CAS No: 134237-52-8.	100 mg/kg (0.01%)

For a new ship, as defined by EU_SRR, an IHM will provide evidence of a Quality Control Process that samples, verifies and monitors the new construction shipyard supply chain to prevent installation of hazardous materials.

For an existing ship, the IHM will provide evidence of an equivalent quality control process, by way of visual and sampling verification, that had not been enforced or controlled at new building shipyards at the time of the ships construction.

The goal of the IHM Manual Part I is to provide evidence of an investigation into the vessels construction components and materials aiming to prove that the hazardous materials sampled for are not present in known and justifiably targeted locations.

IHM • Hazardous Material Summary and checkpoints

Those hazardous materials that are identified above the given thresholds or are presumed to be present on-board pending further investigation, are described and quantified within the IHM Inventory.

A summary of the hazardous materials and an indicative appraisal of selected checkpoint locations are given below.

Asbestos

Asbestos poses a danger to health more than an environmental concern, and is proven to cause asbestosis (lung scarring), lung cancer and mesothelioma (cancer of lung lining).

Anyone that might come into contact with asbestos in their day to day activities should have the relevant training based on the risk assessment of the exposure relative to the task at hand.

● Awareness ● Sampling ● Maintenance ● Removal

Bureau Veritas Solution is in no part involved in the business or operation of asbestos maintenance or removal. The training and duties contracted and performed by a Bureau Veritas Solution IHM expert covers asbestos awareness and asbestos sampling duties only.

Exposure to the fibres of this mineral can cause significant health effects. In the event of asbestos being positively identified above the given threshold value, a risk level assessment will be reported in the IHM Manual Part 1.

Asbestos sampling locations are generally targeted at structural fire protection / boundaries and equipment or components that offer thermal insulation or friction and heat resisting properties. Insulation boards, pipe and exhaust laggings, brake linings, gland packings and flange gaskets are commonly targeted locations. Other sampling locations for asbestos may include (but are not limited to) vinyl or thermoplastic flooring tiles, cements, composites, adhesives, putty, mastics, bulkhead and deck glands, as well as electrical components such as arc shields.

Polychlorinated biphenyls (PCBs)

PCBs are acutely toxic, damaging to the immune system and liver function, carcinogenic, weaken fertility and teratogenic (able to disturb the growth and development of an embryo).

However some of the characteristics of PCBs made them ideal for industrial use, being a good isolator, providing good heat conductance, fire resistant, insoluble, incompressible, low volatility and cheap to manufacture.

As such PCBs were commonly used as a flame retardent additive in rubbers, plastics, coatings and electrical components. Sampling locations for PCB are widespread owing to the potential for its existence. An indicative list of sampling locations would include (but is not limited to) insulating and hydraulic oils, heating mediums, rubber mounts and pipe clamps, plastic foam

IHM • Hazardous Material Summary and checkpoints

insulation, thermal insulation, rubber hoses and gaskets, oil based paints, caulkings, electric cabling and numerous electrical components, switches and voltage regulators.

Ozone Depleting Substances (ODS)

Ozone depleting substances cause no direct harm to humans, but have the ability to reduce ozone and have a climate effect greater than that of carbon dioxide.

The presence of and sampling for ODS is generally targeted at refrigerants used in air conditioning and refrigerating equipment and compressors, urethane formed foams in thermal insulation panels, as well as blowing agents used in cryogenic insulating foams for LNG pipe and tank insulation.

Anti-fouling compounds and systems (AFS)

TBT used in anti-fouling systems can cause severe reproductive effects, impairs the immune system and causes growth defects in aquatic organisms. Exposure and inhalation of TBT in humans may cause breathing problems, headaches, irritated skin, fatigue, dizziness and stomach pains.

Sampling will be aimed at the ships anti-fouling coatings wherever possible, to provide evidence that underwater hull coatings are TBT free.

Perfluorooctane Sulfonic acid (PFOS)

PFOS is chronically toxic, injurious to reproduction, carcinogenic, toxic to aquatic organisms and widely distributed in the global environment. Exposure in humans has been linked to bladder and kidney cancers as well a cause of diabetes.

Ideal sampling locations for PFOS may include (but are not limited to) fire fighting foams (usually in fixed storage tanks), hydraulic fluids, cable sheathing, coatings, adhesives, PVC floorings, gaskets and seals, chromium platings as well as textiled surface treatments.

Cadmium and cadmium compounds

Exposure / breathing of cadmium oxide fumes can cause sore eyes, nose and throat, coughing, headache, weakness, fever, chest pains and breathlessness.

Cadmium and its compounds are used in many processes and products. Sampling locations may include cadmium plated bearings, cadmium-copper alloyed wiring for fire detection systems (cadmium copper conductors), electrical cabling, soldering, pigments in plastics, ceramics and glasses; stabilisers in polyvinylchloride, protective plating on steel / surface films, nickel-cadmium batteries, and paints.

IHM • Hazardous Material Summary and checkpoints

Chromium and chromium compounds

Breathing or swallowing hexavalent chromium or chromium dust, fumes or mist can cause inflammation and cancer of the lungs, kidney damage, irritation and inflammation of the nose and upper respiratory tract, as well as ulcers and fertility problems.

Chromium and its compounds are also used and found in numerous processes and products. Sampling locations for chromium may include (but are not limited to) plating films and surface finishes, stainless steels and other chromium alloyed materials and weldings, dyes and pigments for paints and coatings, catalysts in stored chemicals; leather tanning agents and many other electroplated or anodised components.

Lead and lead compounds

Hot cutting in demolition and dismantling operations as well as paint stripping produces lead dust, fume or vapours that can cause a risk of lead poisoning.

The possible presence of lead is again widespread and sampling when performed will most commonly be targeted at locations known for its use such as lead-acid batteries for emergency power, GMDSS power source or backup power source, starting batteries of aux and emergency generators, spare batteries in emergency generator room, batteries in engine control room and ME control systems, switchboards, automation batteries, life-boat batteries, GMDSS telephones & portable VHF radios, emergency lighting systems, emergency fire pump casings, corrosion resistant primer and paints, solders, preservative coatings, electrical cable insulation, lead sheathed battery cables and lead ingots for ballasting.

Mercury and mercury compounds

Mercury is the most volatile of all metals and its vapour is very toxic. Easily adsorbed, concentrated, and stored over long time periods in mineral and organic matter. Through the food chain heavy metals eventually enter human organs and can cause chronic or acute neurological damage (irritability, paralysis, blindness, insanity, headache and/or depression).

Sampling for mercury components when performed will most commonly be aimed at equipment such as fluorescent light bulbs with mercury arc lamps, electrical switches, mercury batteries, mercury vapour lighting ballasts, high intensity discharge type fluorescent lamps, anodes, thermometers and temperature sensors, as well as some gyrocompass control elements.

IHM • Hazardous Material Summary and checkpoints

Polybrominated Biphenyls (PBB)

PBBs are a group of manufactured chemical compounds used most commonly as a flame retardant additive. Their chlorine based derivatives are known as PCBs. PBBs can cause cancer in humans and can cause skin problems in consumers of contaminated foods.

Suitable sampling locations for PBB may include (but are not limited to) non-flammable plastics, television sets, computer hardware housings and monitors, printed circuit boards, numerous electrical components, distribution boxes for electrical lines, insulation within electrical cabling, cellular rubbers and seals, white goods including washing machines and tumble dryers, polystyrene foams, polyurethane foams, expandable polystyrene foams (EPS) and extruded polystyrene foams (XPS).

Polybrominated Diphenyl Ethers (PBDE)

PBDEs are organ bromine compounds that are also used as flame retardants and are structurally similar to the PCBs. Exposure to low levels of PBDEs through ingestion of food and inhalation accumulates in blood, breast milk, and fat tissues. PBDEs can reduce fertility in humans at higher levels. Increasing PBDE levels have been detected in the blood of marine mammals.

Suitable sampling locations for PBDE may include (but are not limited to) non-flammable plastics, television sets, computer hardware housings and monitors, printed circuit boards, numerous electrical components, distribution boxes for electrical lines, insulation within electrical cabling, cellular rubbers and seals, white goods including washing machines and tumble dryers, polystyrene foams, polyurethane foams, expandable polystyrene foams (EPS) and extruded polystyrene foams (XPS).

Polychlorinated Naphthalene (PCN)

PCN products are made by chemically reacting chlorine with naphthalene (a pungent solid made from coal or petroleum). Exposure causes severe skin rashes. Chronic exposure increases risk of liver disease and a suspected link with cancer.

The presence of and sampling for PCN is generally targeted at paints, lubricating oils, insulating coatings for electrical cabling, wood preservatives, rubber and plastic additives, and capacitor dielectric components.

Radioactive materials

Radioactive materials on ships are generally permanently sealed in a capsule or closely bonded and in a solid form that is used as a source of radiation (not radioactive residues or contamination).

IHM • Hazardous Material Summary and checkpoints

Most of the ionizing radiation that people are exposed to in day-to-day activities comes from natural, rather than manmade, sources.

Radioactive sources are included in the IHM inventory, regardless of the number, type or amount of radioactivity. Physical sampling will not be performed.

Equipment or components sometimes identified on ships that are known to have radioactive sources are typically, ionization chambers in smoke detectors, instruments/signs containing gaseous tritium light sources or radioactive paints, high intensity discharge lamps, radioactive lightning rods and gamma ray level gauges.

Short chain chlorinated paraffin (SCCP)

SCCP is toxic to aquatic organisms at low concentrations. It remains in the environment for a significant time and can bio-accumulate in animal tissues. Certain SCCPs bio-magnify, concentrations increasing as they move through food chains. SCCPs are highly toxic to small aquatic invertebrates and plants. SCCPs are transported in water by adherence to particles and are strongly adsorbed in sediment. A manufacturing growth raises concerns for worldwide exposure levels for people and wildlife.

SCCP in the marine industry is primarily used in coolants and lubricants in metal forming and workshop cutting tools, however suitable sampling locations for SCCP may also include (but are not limited to) softeners and flame retardants in rubbers, paint coatings, adhesives, sealants and plastics.

Hexabromocyclododecane (HBCDD)

HBCDD is very toxic to aquatic organisms, persistent and may cause long-term adverse effects in the aquatic environment. Potential human health concerns are based on animal test results indicating reproductive and neurological effects.

HBCDD is used as flame retardant additive in the manufacturing process of numerous components and products. Suitable sampling locations may include (but are not limited to) expanded foams (EPS) and extruded foams (XPS), polystyrene foam insulations, expanded polystyrene (EPS) used for cryogenic insulations around liquefied gas cargo or fuel tanks, thermal insulation foams in refrigerated areas, switch plug covers, electrical extension covers, polymer material of electrical switch boards, fire sensor or alarm covers, light covers, cable sheathing, polymer made fire resistant insulation, paint coatings, hard plastics, PVC flooring materials as well as gaskets and seals.

ual / Sampling Check Plan (VSCP)

on / Deck	Compartment or Equipment	Details	Objects to check / Parts of use Components	Expected Hazardous Materials	Document Analysis Result	Check Procedure	Sample No.	Check Result	Quantity of the component / material / parts of use containing HM	Quantity of the Hazardous material (calculated)	Remarks
mo- eck 00	Piping - Miscellaneous	Exportation Pump Room (TQ 122301B 01A) / Frame 84 PS	Insulation	Asbestos	Not Contained	Sampling	A43	Not Contained			
mo- eck 00	Accommodation - Ceiling	Electrical Workshop / Frame 34 PS	Lagging material	Asbestos	Not Contained	Sampling	A40	Not Contained			
mo- eck 00	Piping - Miscellaneous	Exportation Pump Room (122301)1D) / Frame 111 PS	Insulation	Asbestos	Not Contained	Sampling	A44	Not Contained			
mo- eck 00	Deck covering	Normal Electrical Panels Room / Frame 52 STB	Rubber applications	Asbestos	Not Contained	Sampling	A35	Not Contained			
mo- eck 00	Accommodation - Wall	Bulkhead insulation / Emergency Generator Room / Frame 38 PS	Insulation	Asbestos	Not Contained	Sampling	A38	Not Contained			
mo- eck 00	Compressor	Air Compressor filter / Air System Room / Frame 85 STB	Insulation	Asbestos	Not Contained	Sampling	A42	Not Contained			
mo- eck 00	Air Conditioner (compressor)	Emergency generator room / Frame 61 PS	Refrigerants	ODS	Not Contained	Visual	A106	Not Contained			

Inventory of Hazardous Materials

ual / Sampling Check Plan (VSCP)

on / Deck	Compartment or Equipment	Details	Objects to check / Parts of use Components	Expected Hazardous Materials	Document Analysis Result	Check Procedure	Sample No.	Check Result	Quantity of the component / material / parts of use containing HM	Quantity of the Hazardous material (calculated)	Remarks
mo- eck 00	Lagging material and insulation	Injection Water Pump (B125101B) / Frame 94 PS	Lagging material	Asbestos	Not Contained	Sampling	A47	Not Contained			
mo- eck 00	Accommodation - Wall	Bulkhead insulation / Emergency Generator Room / Frame 42 PS	Insulation	Asbestos	Not Contained	Sampling	A37	Not Contained			
mo- eck 00	Deck covering	Normal Electrical Panels Room / Frame 52 STB	Floor covering	PFOS	Not Contained	Sampling	A34	Not Contained			
mo- eck 00	Piping - Miscellaneous	Exportation Pump Room (TQ UC 122301C 01A) / Frame 84 PS	Insulation	Asbestos	Not Contained	Sampling	A45	Not Contained			
mo- eck 00	Piping - Miscellaneous	Injection Water Pump (B125101B)	Insulation	Asbestos	Not Contained	Sampling	A46	Not Contained			
mo- eck 00	Accommodation - Floor	Cabin corridor / Frame 24 STB	Floor covering	HBCDD	Not Contained	Sampling	A61	Not Contained			
mo- eck 00	Gaskets	Warehouse 1 / Frame 72 STB	Gaskets	Asbestos	Not Contained	Sampling	A41	Not Contained			

ual / Sampling Check Plan (VSCP)

mo- leck 00	Accommodation - Ceiling	Electrical Workshop / Frame 34 PS	Insulation	ODS	Not Contained	Sampling	A39	Not Contained			

on / Deck	Compartment or Equipment	Details	Objects to check / Parts of use Components	Expected Hazardous Materials	Document Analysis Result	Check Procedure	Sample No.	Check Result	Quantity of the component / material / parts of use containing HM	Quantity of the Hazardous material (calculated)	Remarks
mo- leck 00	Exhaust gas system	DGE discharge gas piping / Emergency Generator Room / Fram 58 PS	Insulation	Asbestos	Not Contained	Sampling	A36	Not Contained			
mo- leck 00	Air Conditioner (compressor)	Emergency generator room / Frame 50 PS	Refrigerants	ODS	Not Contained	Visual	A105	Not Contained			
mo- nine 0- 0	Electric cable penetrations	Under helideck / Electrical cable MCT / Fr. 31 PS	Putty	ODS	Not Contained	Sampling	A5	Not Contained			
mo- nine 0- 0	Accommodation - Wall	Fitness room / bulkhead insulation / Fr. 20 - PS	Insulation	Asbestos	Not Contained	Sampling	A7	Not Contained			
mo- nine 0- 0	Lagging material exhaust pipe	Ventilation VE525149A / duct insulation / Fr. 45 - PS	Insulation	Asbestos	Not Contained	Sampling	A6	Not Contained			
mo- Deck 00	Accommodation - Ceiling	Reading Room / Frame 30 PS	Insulation	ODS	Contained	Sampling	A19	Contained, below threshold value			

ual / Sampling Check Plan (VSCP)

mo- Deck)0	Piping - hot water	Hot Water Pump Room / Frame 107 STB	Insulation	Asbestos	Not Contained	Sampling	A29	Not Contained			

on / Deck	Compartment or Equipment	Details	Objects to check / Parts of use Components	Expected Hazardous Materials	Document Analysis Result	Check Procedure	Sample No.	Check Result	Quantity of the component / material / parts of use containing HM	Quantity of the Hazardous material (calculated)	Remarks
mo- Deck)0	Miscellaneous	Messroom corridor / Frame 32CL	Lagging material	Asbestos	Not Contained	Sampling	A18	Not Contained			
mo- Deck)0	Piping - Miscellaneous	VAC Room No.3 / Frame 90 STB	Insulation	Asbestos	Not Contained	Sampling	A26	Not Contained			
mo- Deck)0	Accommodation - Ceiling	Reading Room / Frame 30 PS	Insulation	ODS	Not Contained	Sampling	A20	Not Contained			
mo- Deck)0	Piping / fittings installed on engines	VAC Room No. 2 Frame 34 STB	Insulation	Asbestos	Not Contained	Sampling	A15	Not Contained			
mo- Deck)0	Accommodation - Floor	Essential Panel Room AC / Frame 30 PS	Rubber applications	Asbestos	Not Contained	Sampling	A22	Not Contained			
mo- Deck)0	Piping - Ventilation	VAC room No. 2 / piping insulation / Fr. 25 - STB	Insulation	PCB	Contained	Sampling	A13	Contained, below threshold value			
mo- Deck)0	Piping - hot water	Hot Water Pump Room / Frame 109 STB	Insulation	Asbestos	Not Contained	Sampling	A27	Not Contained			
mo- Deck)0	Hot water tank	Potable Water Room (AQ 512501-B) / Frame 122 STB	Insulation	Asbestos	Not Contained	Sampling	A33	Not Contained			

ual / Sampling Check Plan (VSCP)

mo- Deck)0	Miscellaneous	Messroom corridor / Frame 32CL	Insulation	Asbestos	Not Contained	Sampling	A17	Not Contained			
mo- Deck)0	Piping - Air systems	VAC Room No.5 / Frame 89 PS	Insulation	Asbestos	Not Contained	Sampling	A23	Not Contained			

on / Deck	Compartment or Equipment	Details	Objects to check / Parts of use Components	Expected Hazardous Materials	Document Analysis Result	Check Procedure	Sample No.	Check Result	Quantity of the component / material / parts of use containing HM	Quantity of the Hazardous material (calculated)	Remarks
mo- Deck)0	Piping - Miscellaneous	VAC Room No. 4 (URA 525201-A-01) Frame 92 STB	Insulation	PCB	Contained	Sampling	A24	Contained, below threshold value			
mo- Deck)0	Accommodation - Wall	Reading Room / Frame 34 Ps	Insulation	Asbestos	Not Contained	Sampling	A21	Not Contained			
mo- Deck)0	Piping - hot water	Hot Water Pump Room / Frame 110 STB	Insulation	Asbestos	Not Contained	Sampling	A31	Not Contained			
mo- Deck)0	Accommodation - Floor	Messroom corridor / Floor cover / Frame 33 CL	Floor covering	Asbestos	Not Contained	Sampling	A16	Not Contained			
mo- Deck)0	Lagging material and insulation	Hot Water Pump Room / Frame 109 STB	Lagging material	Asbestos	Not Contained	Sampling	A28	Not Contained			
mo- Deck)0	Battery	Battery Room 2 / Frame 50 PS	Battery plates	Lead	Contained	Visual	A104	PCHM	66 PCS		Confirmed by visu check
mo- Deck)0	Piping - Miscellaneous	VAC Room No.4 (URA 525201-A-01) / Frame 85 STB	Insulation	PCB	Contained	Sampling	A25	Contained, below threshold value			

ual / Sampling Check Plan (VSCP)

mo- Deck 00	Battery	Battery Room 1 / Frame 60 PS	Battery plates	Lead	Contained	Visual	A103	PCHM	694 PCS		Confirmed by visu check
mo- Deck 00	Accommodation - Wall	VAC Room No.2 - Frame 34 STB	Insulation	Asbestos	Not Contained	Sampling	A14	Not Contained			
mo- Deck 00	Lagging material and insulation	Hot Water Pump Room / Frame 107 STB	Lagging material	Asbestos	Not Contained	Sampling	A30	Not Contained			

on / Deck	Compartment or Equipment	Details	Objects to check / Parts of use Components	Expected Hazardous Materials	Document Analysis Result	Check Procedure	Sample No.	Check Result	Quantity of the component / material / parts of use containing HM	Quantity of the Hazardous material (calculated)	Remarks
mo- Deck 00	Piping - hot water	Hot Water Pump Room / Frame 124 STB	Insulation	Asbestos	Not Contained	Sampling	A32	Not Contained			
mo- Deck 00	Accommodation - Floor	Control room / Floor tile / Fr. 47 - STB	Floor covering	HBCDD	Not Contained	Sampling	A1	Not Contained			
mo- Deck 00	Miscellaneous	Laboratory / rubber door sealing / Fr. 20 - STB	Door Seal	Asbestos	Not Contained	Sampling	A12	Not Contained			
mo- Deck 00	Accommodation - Floor	Control room / floor tile / Fr. 47 - PS	Floor covering	PCB	Contained	Sampling	A2	Contained, below threshold value			
mo- Deck 00	Air Conditioner (compressor)	VAC Room No.1 / Frame 15 STB	Refrigerants	ODS	Not Contained	Visual	A102	Not Contained			
mo- Deck 00	AC system	VAC room No. 1 / piping insulation / Fr. 32 - STB	Insulation	PCB	Contained	Sampling	A9	Contained, below threshold value			

ual / Sampling Check Plan (VSCP)

mo- Deck)0	AC system	VAC room No.1 / piping insulation / Fr. 30 - STB	Insulation	Asbestos	Not Contained	Sampling	A8	Not Contained			
mo- Deck)0	AC system	VAC room No.1 / piping insulation / Fr. 17 STB	Insulation	Asbestos	Not Contained	Sampling	A10	Not Contained			
mo- Deck)0	Accommodation - Wall	VAC room No. 1 / bulkhead insulation / Fr. 15 STB	Insulation	Asbestos	Not Contained	Sampling	A11	Not Contained			
Area - nine)- 0	Lagging material and insulation	Tank P 122301A / Frame 95 STB	Insulation	Asbestos	Not Contained	Sampling	A80	Not Contained			

on / Deck	Compartment or Equipment	Details	Objects to check / Parts of use Components	Expected Hazardous Materials	Document Analysis Result	Check Procedure	Sample No.	Check Result	Quantity of the component / material / parts of use containing HM	Quantity of the Hazardous material (calculated)	Remarks
Area - nine)- 0	Fire protection- /fighting system	Helideck foam tank / Frame 22 PS	Extinguishing agent	PFOS	Contained	Visual	A101	PCHM	1 m3		Confirmed by visu check
Area - nine)- 0	Lagging material and insulation	Tank P 122303A / Frame 97 STB	Insulation	ODS	Not Contained	Sampling	A79	Not Contained			
Area - nine)- 0	Lagging material and insulation	Tank SG 122301A / Frame 66 CL	Insulation	Asbestos	Not Contained	Sampling	A77	Not Contained			
Area - nine)- 0	Lagging material and insulation	Tank P 122301B / Frame 95 STB	Insulation	Asbestos	Not Contained	Sampling	A78	Not Contained			

ual / Sampling Check Plan (VSCP)

Area - Deck 00	Lagging material and insulation	Slop Vase TQ V533602 / Frame 133 CL	Insulation	Asbestos	Not Contained	Sampling	A75	Not Contained			
Area - Deck 00	Piping - Miscellaneous	Piping insulation / Frame 132 STB	Insulation	Asbestos	Not Contained	Sampling	A76	Not Contained			
Area - Deck 00	Piping - Miscellaneous	Piping insulation / Frame 125 PS	Insulation	Asbestos	Not Contained	Sampling	A74	Not Contained			
Area - Deck 00	Piping - Miscellaneous	Piping insulation / Frame 105 PS	Insulation	Asbestos	Not Contained	Sampling	A73	Not Contained			
Area - Deck 00	Miscellaneous	Tank TQ V533601 / Frame 95 STB	Insulation	Asbestos	Not Contained	Sampling	A55	Not Contained			
Area - Deck 00	Miscellaneous	Tank TQ V123301 / Frame 67 PS	Insulation	Asbestos	Not Contained	Sampling	A51	Not Contained			
Area - Deck 00	Piping - Miscellaneous	Glicol piping / Frame 70 PS	Insulation	Asbestos	Not Contained	Sampling	A53	Not Contained			

on / Deck	Compartment or Equipment	Details	Objects to check / Parts of use Components	Expected Hazardous Materials	Document Analysis Result	Check Procedure	Sample No.	Check Result	Quantity of the component / material / parts of use containing HM	Quantity of the Hazardous material (calculated)	Remarks
Area - Deck 00	Miscellaneous	Atmospheric Separator 5G122303 / Frame 93 STB	Insulation	Asbestos	Not Contained	Sampling	A58	Not Contained			
Area - Deck 00	Miscellaneous	Gas hydration Tank TQ V123303 / Frame 68 PS	Insulation	Asbestos	Not Contained	Sampling	A52	Not Contained			
Area - Deck 00	Piping - Miscellaneous	Attached to TQ V433601 / Frame 93 STB	Insulation	Asbestos	Not Contained	Sampling	A57	Not Contained			
Area - Deck 00	Machinery space coatings	Walkway / Frame 120 STB	Coatings & paint	TBT	Not Contained	Sampling	A60	Not Contained			

ual / Sampling Check Plan (VSCP)

Area - Deck 00	Piping - Miscellaneous	Piping Frame 75 CL	Insulation	Asbestos	Not Contained	Sampling	A56	Not Contained			
Area - Deck 00	Compressor	Booster Compressor discharge scrubber V-UC-1-22302 / Frame 135 STB	Insulation	Asbestos	Not Contained	Sampling	A59	Not Contained			
Area - Deck 00	Piping - Miscellaneous	Piping P513502	Insulation	Asbestos	Not Contained	Sampling	A54	Not Contained			
Area - Deck 00	Miscellaneous	Desalter Tank - Tq 122301A / Frame 49 PS	Insulation	Asbestos	Not Contained	Sampling	A48	Not Contained			
Area - Deck 00	Ventilation duct	Ventilation VE 110 / Frame 26 STB	Rubber applications	ODS	Contained	Sampling	A62	Contained, below threshold value			
Area - Deck 00	Piping - Miscellaneous	Attached to TQ 122301B / Frame 59 PS	Insulation	Asbestos	Not Contained	Sampling	A50	Not Contained			

on / Deck	Compartment or Equipment	Details	Objects to check / Parts of use Components	Expected Hazardous Materials	Document Analysis Result	Check Procedure	Sample No.	Check Result	Quantity of the component / material / parts of use containing HM	Quantity of the Hazardous material (calculated)	Remarks
Area - Deck 00	Miscellaneous	Desalter Tank TQ 122301B / Frame 64 PS	Insulation	Asbestos	Not Contained	Sampling	A49	Not Contained			
Room Deck 00	Engine Control Room / Control Systems	Hydraulic Unit (Ballast Control System) / Column 4 (PS) / Frame 77 PS	Hydraulic oil	PFOS	Contained	Visual	A109	PCHM	PCHM - Quantity to be determined		Confirmed by visu check

ual / Sampling Check Plan (VSCP)

Room Deck 00	Engine Control Room / Control Systems	Hydraulic Unit (Ballast Control System) / Column 3 (STB) / Frame 77 STB	Hydraulic oil	PFOS	Contained	Visual	A107	PCHM	PCHM - Quantity to be determined		Confirmed by visu check
Room Deck 00	Engine Control Room / Control Systems	Hydraulic Unit (Anchorage Winch) / Column 1,2,5 and 6 / Frames 25 P/S - 129 P/S)	Hydraulic oil	PFOS	Contained	Visual	A110	PCHM	PCHM - Quantity to be determined		Confirmed by visu check
eck - eck 00	Lagging material and insulation	Test separator SG122302 / Frame 102 PS	Insulation	Asbestos	Not Contained	Sampling	A71	Not Contained			
eck - eck 00	Lagging material and insulation	Test Heater TQ P122302 / Frame 108 PS	Insulation	Asbestos	Not Contained	Sampling	A69	Not Contained			
eck - eck 00	Bulkhead plating	Bulkhead insulation / Frame 49 PS	Insulation	ODS	Not Contained	Sampling	A67	Not Contained			
eck - eck 00	Bulkhead plating	Bulkhead insulation / Frame 49 STB	Insulation	Asbestos	Not Contained	Sampling	A63	Not Contained			

on / Deck	Compartment or Equipment	Details	Objects to check / Parts of use Components	Expected Hazardous Materials	Document Analysis Result	Check Procedure	Sample No.	Check Result	Quantity of the component / material / parts of use containing HM	Quantity of the Hazardous material (calculated)	Remarks
eck - eck 00	Lifeboat crane	Lifeboat #3 davit fender / Frame 19 STB	Rubber applications	Asbestos	Not Contained	Sampling	A64	Not Contained			
eck - eck 00	Lagging material and insulation	Low Flare Tank TQ V541202 / Frame 108 STB	Insulation	ODS	Not Contained	Sampling	A72	Not Contained			

ual / Sampling Check Plan (VSCP)

eck - eck 00	Piping - Miscellaneous	Piping P B10-012 / Frame 106 PS	Insulation	Asbestos	Not Contained	Sampling	A70	Not Contained			
eck - eck 00	Engine Control Room / Control Systems	Well Control Panel Room / Frame 117 STB	Hydraulic oil	PFOS	Contained	Visual	A108	PCHM	PCHM - Quantity to be determined		Confirmed by visu check
eck - eck 00	Diesel Engine	Turbocharger filter / Fire Pump Fwd PS / Frame 45 PS	Mineral wool	Asbestos	Not Contained	Sampling	A66	Not Contained			
eck - eck 00	Refrigerant	Refrigeranting gas packing spare / Frame 74 STB	Refrigerants	ODS	Not Contained	Visual	A111	Not Contained			
eck - eck 00	Piping - Miscellaneous	Piping close to Tank TQ V123302 / Frame 102 PS	Insulation	Asbestos	Not Contained	Sampling	A68	Not Contained			
eck - eck 00	Electrical equipment	Electrical support AE404A04 / Frame 24 PS	Equipment parts / spares	Asbestos	Not Contained	Sampling	A65	Not Contained			
aneous eck 00	Floor, walls and ceiling	PS cargo crane boom catwalk / floor structure / Fr. 80 - PS	Floor covering	Asbestos	Not Contained	Sampling	A4	Not Contained			

on / Deck	Compartment or Equipment	Details	Objects to check / Parts of use Components	Expected Hazardous Materials	Document Analysis Result	Check Procedure	Sample No.	Check Result	Quantity of the component / material / parts of use containing HM	Quantity of the Hazardous material (calculated)	Remarks

ual / Sampling Check Plan (VSCP)

aneous nine)- 0	Accommodation Decks	Football field / floor tile / Fr. 20 - STB	Floor covering	PFOS	Not Contained	Sampling	A3	Not Contained			

Inventory of Hazardous Materials

I Inventory

aints and Coating Systems containing materials listed in Annex I and Annex II of Regulation (EU) No 1257/2013 on Ship Recycl

ne detected

Name of equipment or compartment to which the coating is applied	Color of paint	Location	Deck	Additional description	Sample No.	Hazardous Materials	Approximative quantity	Remarks

quipment and Machinery containing materials listed in Annex I and Annex II of Regulation (EU) No 1257/2013 on Ship Recyclin

Name of equipment and machinery	Location	Deck	Additional description	Sample No.	Hazardous Materials	Parts where used	Approximative quantity	Remarks
Fire protection/fighting system	Cargo Area	Mezzanine Deck El.4700-0/44000	Helideck foam tank / Frame 22 PS	A101	PFOS	Extinguishing agent	1 m3 - PCHM	Confirmed by visual cl
Engine Control Room / Control Systems	Engine Room	Spider Deck El.25700	Hydraulic Unit (Ballast Control System) / Column 4 (PS) / Frame 77 PS	A109	PFOS	Hydraulic oil	PCHM - Quantity to be determined	Confirmed by visual cl
Engine Control Room / Control Systems	Engine Room	Spider Deck El.25700	Hydraulic Unit (Ballast Control System) / Column 3 (STB) / Frame 77 STB	A107	PFOS	Hydraulic oil	PCHM - Quantity to be determined	Confirmed by visual cl
Engine Control Room / Control Systems	Main Deck	Main Deck El.31500	Well Control Panel Room / Frame 117 STB	A108	PFOS	Hydraulic oil	PCHM - Quantity to be determined	Confirmed by visual cl
Battery	Accommodation	Tween Deck El.34500	Battery Room 2 / Frame 50 PS	A104	Lead	Battery plates	66 PCS - PCHM	Confirmed by visual cl
Battery	Accommodation	Tween Deck El.34500	Battery Room 1 / Frame 60 PS	A103	Lead	Battery plates	694 PCS - PCHM	Confirmed by visual cl
Engine Control Room / Control Systems	Engine Room	Spider Deck El.25700	Hydraulic Unit (Anchorage Winch) / Column 1,2,5 and 6 / Frames 25 P/S - 129 P/S)	A110	PFOS	Hydraulic oil	PCHM - Quantity to be determined	Confirmed by visual cl

tructure and Hull containing materials listed in Annex I and Annex II of Regulation (EU) No 1257/2013 on Ship Recycling.

ne detected

Name of structural element	Location	Deck	Additional description	Sample No.	Hazardous Materials	Parts where used	Approximative quantity	Remarks

ort of visual checks and sampling locations – Contained, PCHM and Contained below threshold value

General Interpretation of Risk Assessment Level

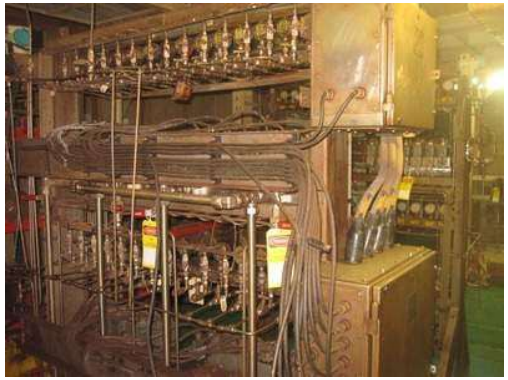
Risk Assessment Level	Interpretation of the Recommended Control Action
High	Control measures and suitable safety precautions to be implemented immediately. Flag consultation recommended.
Medium	Safety precautions to be considered as soon as practicable. Flag instructions followed. In interim period, materials re-examined regularly.
Low	No immediate control action considered necessary. Material condition to be maintained. Flag to be informed and instructions followed.

stos Management - No data

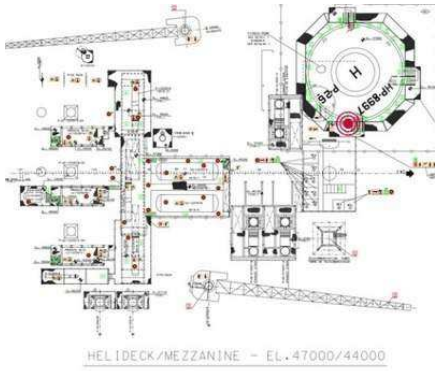
Inventory of Hazardous Materials

ort of visual checks and sampling locations – Contained, PCHM and Contained below threshold value

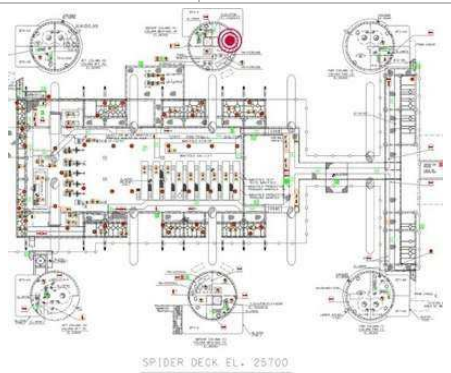
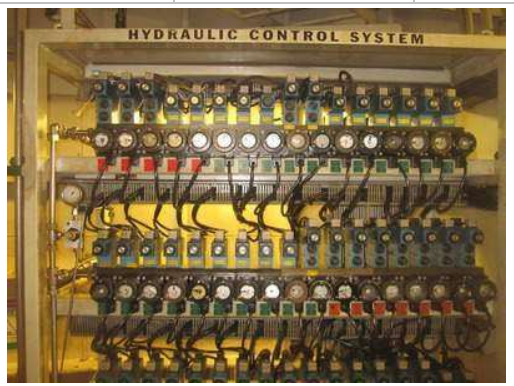
her HazMats (non Asbestos) Management

n / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Recommended Action
eck El.31500 eck	PFOS	Visual	A108	PCHM	PCHM - Quantity to be determined	
Control Room / Control Systems-Hydraulic oil- ntrol Panel Room / Frame 117 STB						
ine Deck 0/44000 rea	PFOS	Visual	A101	PCHM	1 m3	

ort of visual checks and sampling locations – Contained, PCHM and Contained below threshold value

tection/fighting system-Extinguishing agent- k foam tank / Frame 22 PS						

n / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Recommended Action
Deck El.25700 Room	PFOS	Visual	A109	PCHM	PCHM - Quantity to be determined	

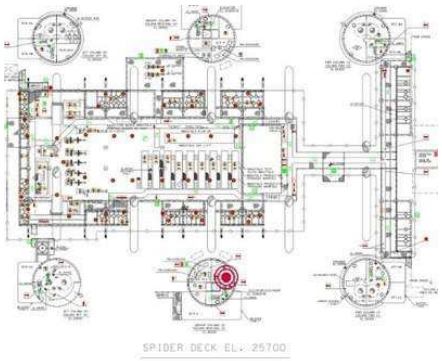
Control Room / Control Systems-Hydraulic oil- ic Unit (Ballast Control System) / Column 4 rame 77 PS						

Deck El.25700 Room	PFOS	Visual	A107	PCHM	PCHM - Quantity to be determined	

Inventory of Hazardous Materials

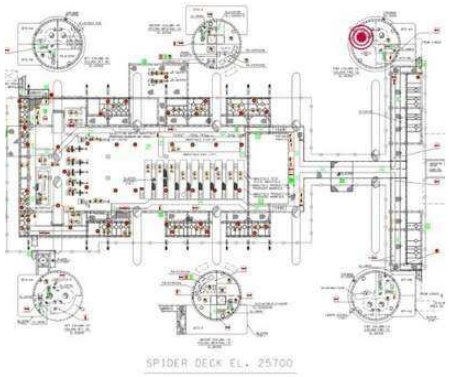
ort of visual checks and sampling locations – Contained, PCHM and Contained below threshold value

Control Room / Control Systems-Hydraulic oil-
ic Unit (Ballast Control System) / Column 3
Frame 77 STB



n / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Recommended Action
Deck El.25700 Room	PFOS	Visual	A110	PCHM	PCHM - Quantity to be determined	

Control Room / Control Systems-Hydraulic oil-
ic Unit (Anchorage Winch) / Column 1,2,5 and 6
s 25 P/S - 129 P/S)



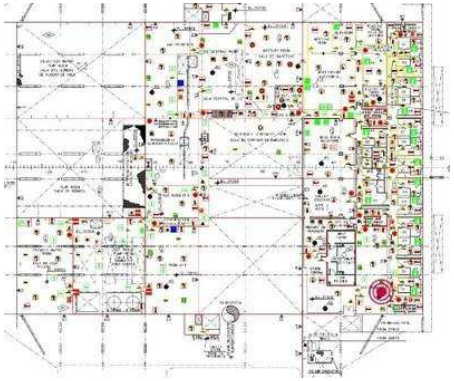
Deck El.34500 nodation	ODS	Sampling	A19	Contained, below threshold value		

ort of visual checks and sampling locations – Contained, PCHM and Contained below threshold value

nodation - Ceiling-Insulation-Reading Room /
30 PS

n / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Recommended Action
Deck El.34500 nodation	PCB	Sampling	A13	Contained, below threshold value		

Ventilation-Insulation-VAC room No. 2 / piping
on / Fr. 25 - STB



Deck El.34500 nodation	PCB	Sampling	A24	Contained, below threshold value		

ort of visual checks and sampling locations – Contained, PCHM and Contained below threshold value

Miscellaneous-Insulation-VAC Room No. 4
25201A-01) Frame 92 STB

n / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Recommended Action
Deck El.34500 nodation	Lead	Visual	A104	PCHM	66 PCS	

·Battery plates-Battery Room 2 / Frame 50 PS

Deck El.34500 nodation	PCB	Sampling	A25	Contained, below threshold value		

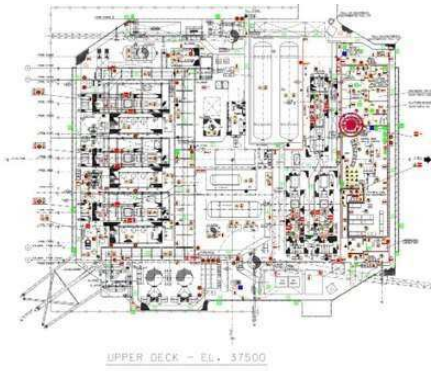
ort of visual checks and sampling locations – Contained, PCHM and Contained below threshold value

Miscellaneous-Insulation-VAC Room No.4 25201A-01) / Frame 85 STB			

n / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Recommended Action
Deck El.34500 nodation	Lead	Visual	A103	PCHM	694 PCS	
-Battery plates-Battery Room 1 / Frame 60 PS						
Deck El.37500 nodation	PCB	Sampling	A2	Contained, below threshold value		

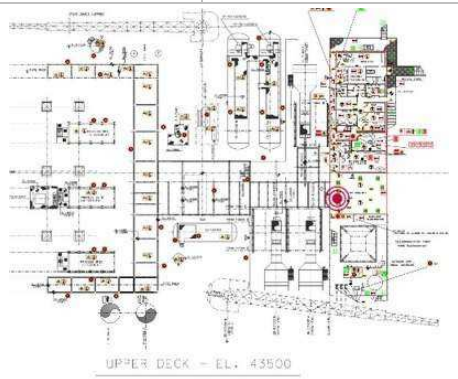
ort of visual checks and sampling locations – Contained, PCHM and Contained below threshold value

nodation - Floor-Floor covering-Control room /
/ Fr. 47 - PS



n / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Recommended Action
Deck El.43500 nodation	PCB	Sampling	A9	Contained, below threshold value		

em-Insulation-VAC room No. 1 / piping
n / Fr. 32 - STB



Deck El.43500 rea	ODS	Sampling	A62	Contained, below threshold value		

ort of visual checks and sampling locations – Contained, PCHM and Contained below threshold value

ion duct -Rubber applications-Ventilation VE ame 26 STB			

Inventory of Hazardous Materials

ardous materials per location - Contained and PCHM

		Hazardous materials														
ation / Zone	Sub-section	Asbestos	ODS	PCB	TBT	PFOS	Cadmium	Chromium	Mercury	Lead	PBB	PBDE	PCN	Radioactive Substances	SCCP	HBC
argo Area	Miscellaneous					1										
gine Room	Miscellaneous					3										
Main Deck	Miscellaneous					1										
ommodation	Electric equipment									2						

Maintenance of IHM

EU Ships recycling regulations (EU_SRR) & Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships both stipulate that after initial preparation and delivery of an IHM Manual Part I, a shipping company or ship owner is thereafter responsible for appointing a "Designated Person" for maintenance of IHMs during the lifetime of the ship.

Part I of the IHM belongs to the ship owner / operator and should be routinely maintained by a designated person nominated by the ship owner / operator for this task. Continuity, conformity and upkeep of the information contained within the IHM is a continuous process and should be confirmed throughout the ships lifecycle, especially if the flag, owner or operator of the ship changes.

The aim is to have valid information on the hazardous materials situation on board at all times, accounting for procurement, stores delivery, refit periods, major or minor conversions as well as any unscheduled works involving changes, replacements or repairs to the structure, equipment, systems, fittings, arrangements and materials, any of which having impact on the validity of the IHM Inventory.

In this context and in accordance with the IMO guidelines on IHM management, ship owners should implement a series of measures to ensure on-going conformity of Part I of the Inventory.

1. The nomination of and the duties assigned to the companies designated person should be incorporated in the ship owners quality management system.

2. The ship operator’s quality management system should include specific provisions to safeguard the quality and continuity of the IHM when building, buying or selling a ship or changing ship’s registry or ship’s IHM designated person.

3. The ship operator’s quality management system should make proper provision for maintenance of an IHM archive of all associated documentation, ensuring that new installations of equipment, repairs or replacements are accompanied by MD’s and SDoC’s, wherever appropriate, as provided by the suppliers of parts and equipment delivered.

4 IHM must be properly maintained and updated throughout the operational life of the ship and when regulations require, should be supplemented by an ‘Inventory Certificate’ or ‘Statement of Compliance’ issued by any Member State or authorised organisation.

IHM Manual Part I and supporting certification will in future be controlled by the Port State Control. Therefore, Material Declarations (MD) and Suppliers Declaration of Conformity (SDoC) should be requested and collected from suppliers for all components and materials

that are falling under the scope of IHM Part I (structure and equipment). An up to date IHM archive may be used as supporting evidence of an on-going IHM development and maintenance process and quality management of all IHM relevant documents, information and data.

intenance of IHM

IHM Maintenance Responsible Person

Full Name	Eduardo Rodrigues da Costa
Position	
Email address	eduardo.r.costa@petrobras.com.br
Phone number	021 967210666

Signatories

Prepared by:

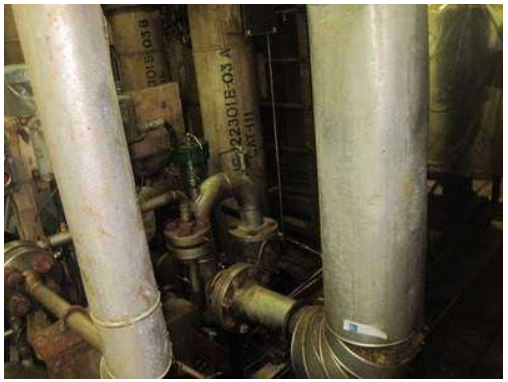
Title	Mr
Name	Roberto Yamaki
Company	BV Solutions Marine & Offshore
Address	8 Boulevard Albert Einstein, 44300 Nantes, France
Position	Surveyor
Date	20/03/2023

ɔendix - Report of visual checks and sampling locations – Not Contained

General Interpretation of Risk Assessment Level

Risk Assessment Level	Interpretation of the Recommended Control Action
High	Control measures and suitable safety precautions to be implemented immediately. Flag consultation recommended.
Medium	Safety precautions to be considered as soon as practicable. Flag instructions followed. In interim period, materials re-examined regularly.
Low	No immediate control action considered necessary. Material condition to be maintained. Flag to be informed and instructions followed.

stos Management

ɔn / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample res ılt	Quantity	Risk Level Assessment	Remarks
eck El.31500 nodation	Asbestos	Sampling	A43	Not Contained			
Miscellaneous-Insulation-Exportation Pump TQ 122301B 01A) / Frame 84 PS							

Inventory of Hazardous Materials

ɔendix - Report of visual checks and sampling locations – Not Contained

ɔn / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Risk Level Assessment	Remarks
eck El.31500 nodation	Asbestos	Sampling	A40	Not Contained			
nodation - Ceiling-Lagging material-Electrical op / Frame 34 PS							
eck El.31500 nodation	Asbestos	Sampling	A44	Not Contained			
Miscellaneous-Insulation-Exportation Pump 122301)1D) / Frame 111 PS							

ɔendix - Report of visual checks and sampling locations – Not Contained

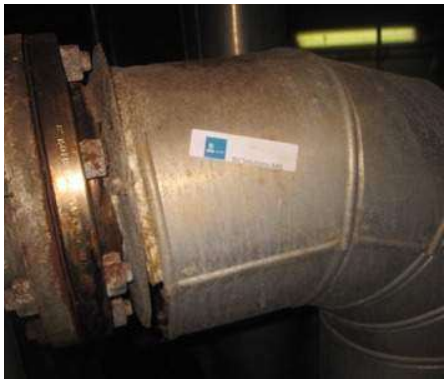
ɔn / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Risk Level Assessment	Remarks
eck El.31500 nodation	Asbestos	Sampling	A35	Not Contained			
ɔvering-Rubber applications-Normal Electrical Room / Frame 52 STB							
eck El.31500 nodation	Asbestos	Sampling	A38	Not Contained			
nodation - Wall-Insulation-Bulkhead insulation / ɛncy Generator Room / Frame 38 PS							

ɔendix - Report of visual checks and sampling locations – Not Contained

ɔn / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Risk Level Assessment	Remarks
eck El.31500 nodation	Asbestos	Sampling	A42	Not Contained			
essor-Insulation-Air Compressor filter / Air Room / Frame 85 STB							
eck El.31500 nodation	Asbestos	Sampling	A47	Not Contained			
g material and insulation-Lagging l-Injection Water Pump (B125101B) / Frame 94							

Inventory of Hazardous Materials

ɔendix - Report of visual checks and sampling locations – Not Contained

ɔn / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Risk Level Assessment	Remarks
eck El.31500 nodation	Asbestos	Sampling	A37	Not Contained			
nodation - Wall-Insulation-Bulkhead insulation / ɛncy Generator Room / Frame 42 PS							
eck El.31500 nodation	Asbestos	Sampling	A45	Not Contained			
Miscellaneous-Insulation-Exportation Pump (TQ UC 122301C 01A) / Frame 84 PS							

ɔendix - Report of visual checks and sampling locations – Not Contained

ɔn / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Risk Level Assessment	Remarks
eck El.31500 nodation	Asbestos	Sampling	A46	Not Contained			
· Miscellaneous-Insulation-Injection Water Pump 01B)							
eck El.31500 nodation	Asbestos	Sampling	A41	Not Contained			
s-Gaskets-Warehouse 1 / Frame 72 STB							

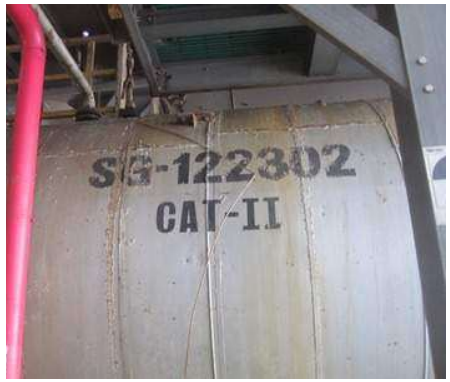
Inventory of Hazardous Materials

ɔendix - Report of visual checks and sampling locations – Not Contained

ɔn / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Risk Level Assessment	Remarks
eck El.31500 nodation	Asbestos	Sampling	A36	Not Contained			

t gas system-Insulation-DGE discharge gas Emergency Generator Room / Fram 58 PS

eck El.31500 eck	Asbestos	Sampling	A71	Not Contained			



ɡ material and insulation-Insulation-Test or SG122302 / Frame 102 PS

ɔendix - Report of visual checks and sampling locations – Not Contained

ɔn / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Risk Level Assessment	Remarks
eck El.31500 eck	Asbestos	Sampling	A69	Not Contained			
g material and insulation-Insulation-Test Heater :2302 / Frame 108 PS							
eck El.31500 eck	Asbestos	Sampling	A63	Not Contained			
ad plating-Insulation-Bulkhead insulation / 49 STB							

ɔendix - Report of visual checks and sampling locations – Not Contained

ɔn / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Risk Level Assessment	Remarks
ɛck El.31500 ɛck	Asbestos	Sampling	A64	Not Contained			
t crane-Rubber applications-Lifeboat #3 davit ' Frame 19 STB							
ɛck El.31500 ɛck	Asbestos	Sampling	A70	Not Contained			
· Miscellaneous-Insulation-Piping P B10-012 / 106 PS							

Inventory of Hazardous Materials

ppendix - Report of visual checks and sampling locations – Not Contained

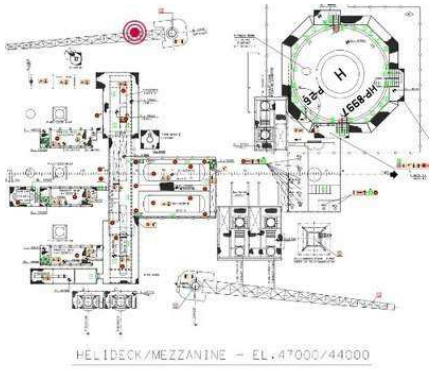
on / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Risk Level Assessment	Remarks
eck El.31500 eck	Asbestos	Sampling	A66	Not Contained			
Engine-Mineral wool-Turbocharger filter / Fire Fwd PS / Frame 45 PS							
eck El.31500 eck	Asbestos	Sampling	A68	Not Contained			
Miscellaneous-Insulation-Piping close to Tank 3302 / Frame 102 PS							

ɔendix - Report of visual checks and sampling locations – Not Contained

ɔn / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Risk Level Assessment	Remarks
ɛck El.31500 ɛck	Asbestos	Sampling	A65	Not Contained			

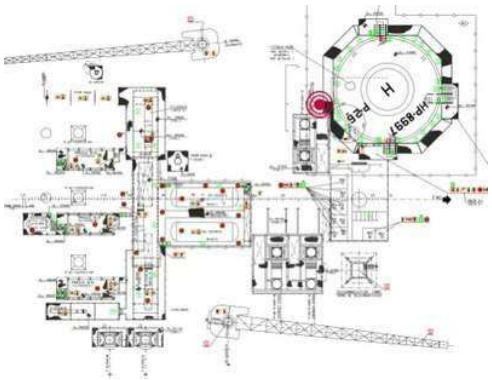
al equipment-Equipment parts / Electrical support AE404A04 / Frame 24 PS

ɛck El.31500 ɜneous	Asbestos	Sampling	A4	Not Contained			

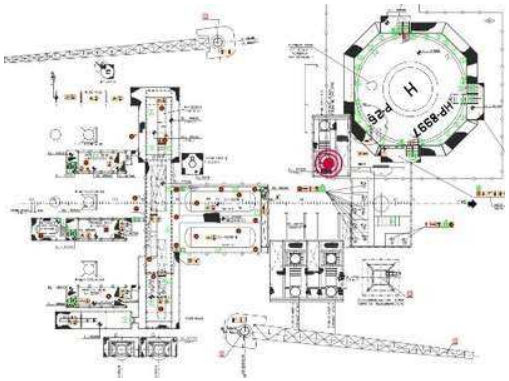


ɣalls and ceiling-Floor covering-PS cargo crane ɜatwalk / floor structure / Fr. 80 - PS

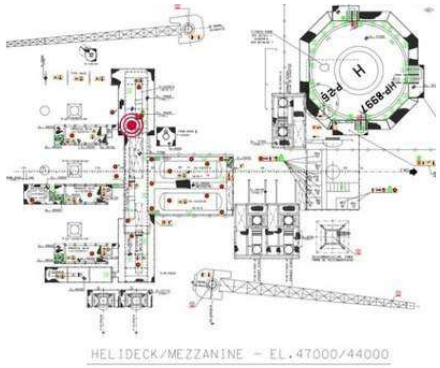
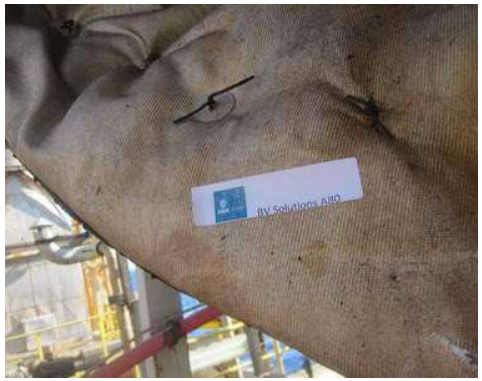
ɔendix - Report of visual checks and sampling locations – Not Contained

ɔn / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Risk Level Assessment	Remarks
ıine Deck 0/44000 ınodation	Asbestos	Sampling	A7	Not Contained			
ınodation - Wall-Insulation-Fitness room / ıd insulation / Fr. 20 - PS							
ıine Deck 0/44000 ınodation	Asbestos	Sampling	A6	Not Contained			

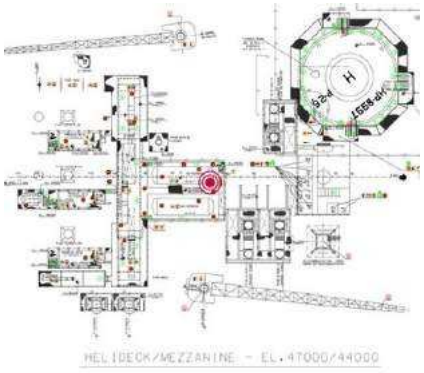
ɔendix - Report of visual checks and sampling locations – Not Contained

ɡ material - exhaust pipe-Insulation-Ventilation l49A / duct insulation / Fr. 45 - PS			

ɔn / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Risk Level Assessment	Remarks
ıine Deck 0/44000 ⟨rea	Asbestos	Sampling	A80	Not Contained			

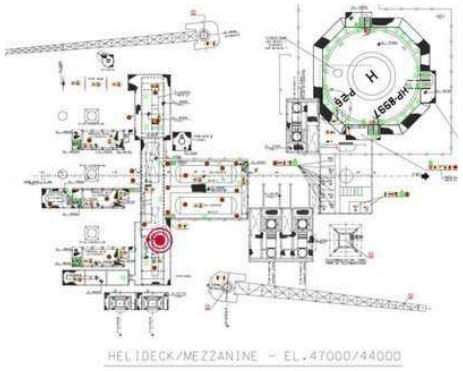
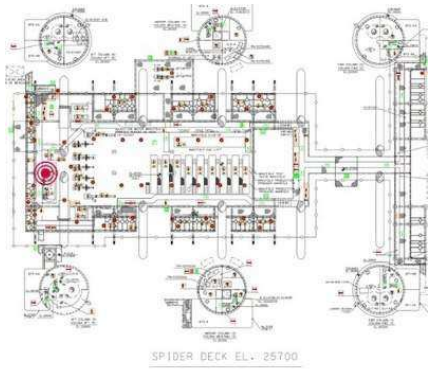
ɡ material and insulation-Insulation-Tank P A / Frame 95 STB			

ɔendix - Report of visual checks and sampling locations – Not Contained

ıine Deck 0/44000 \rea	Asbestos	Sampling	A77	Not Contained			
ɡ material and insulation-Insulation-Tank SG A / Frame 66 CL							

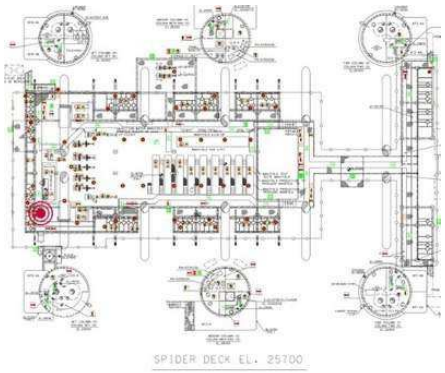
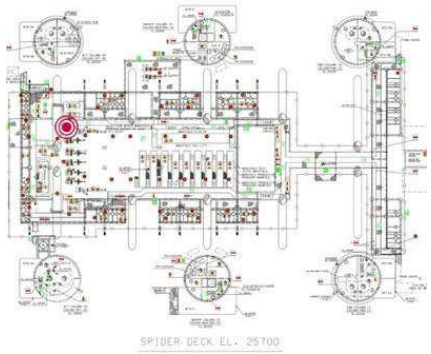
on / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Risk Level Assessment	Remarks
ıine Deck 0/44000 \rea	Asbestos	Sampling	A78	Not Contained			

ɔendix - Report of visual checks and sampling locations – Not Contained

ɣ material and insulation-Insulation-Tank P B / Frame 95 STB							
Deck El.25700 Area	Asbestos	Sampling	A75	Not Contained			
ɣ material and insulation-Insulation-Slop Vase 3602 / Frame 133 CL							

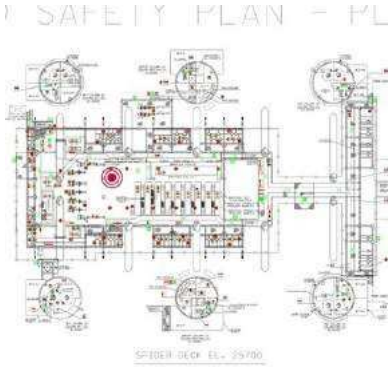
ɔn / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Risk Level Assessment	Remarks
Deck El.25700 Area	Asbestos	Sampling	A76	Not Contained			

ɔendix - Report of visual checks and sampling locations – Not Contained

· Miscellaneous-Insulation-Piping insulation / 132 STB							
Deck El.25700 Area	Asbestos	Sampling	A74	Not Contained			
· Miscellaneous-Insulation-Piping insulation / 125 PS							

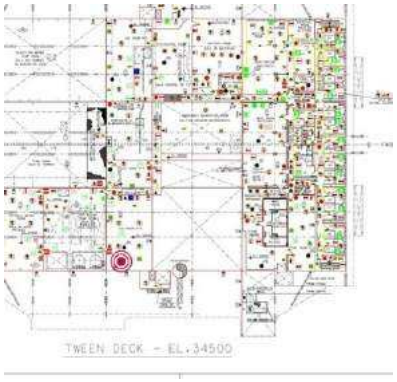
ɔn / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Risk Level Assessment	Remarks
Deck El.25700 Area	Asbestos	Sampling	A73	Not Contained			

ɔendix - Report of visual checks and sampling locations – Not Contained

· Miscellaneous-Insulation-Piping insulation / 105 PS							
Deck El.34500 nodation	Asbestos	Sampling	A29	Not Contained			
· hot water-Insulation-Hot Water Pump Room / 107 STB							

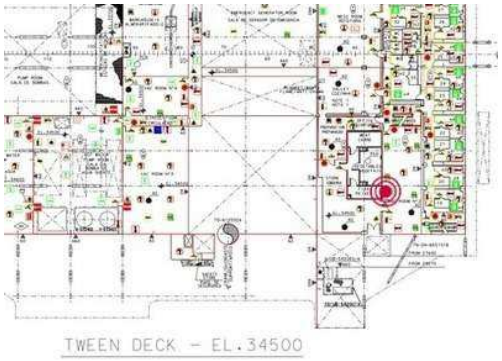
ɔn / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Risk Level Assessment	Remarks
Deck El.34500 nodation	Asbestos	Sampling	A18	Not Contained			

ɔendix - Report of visual checks and sampling locations – Not Contained

aneous-Lagging material-Messroom corridor / 32CL							
Deck El.34500 nodation	Asbestos	Sampling	A26	Not Contained			
· Miscellaneous-Insulation-VAC Room No.3 / 90 STB							

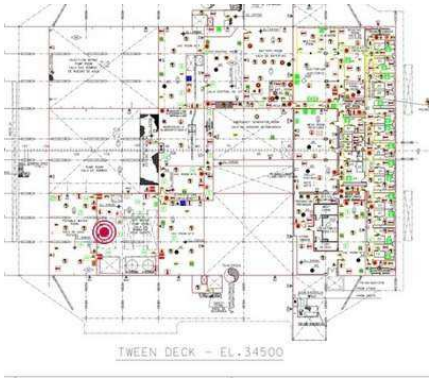
ɔn / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Risk Level Assessment	Remarks
Deck El.34500 nodation	Asbestos	Sampling	A15	Not Contained			

ɔendix - Report of visual checks and sampling locations – Not Contained

fittings installed on engines-Insulation-VAC Ao. 2 Frame 34 STB							
Deck El.34500 nodation	Asbestos	Sampling	A22	Not Contained			
nodation - Floor-Rubber applications-Essential Room AC / Frame 30 PS							

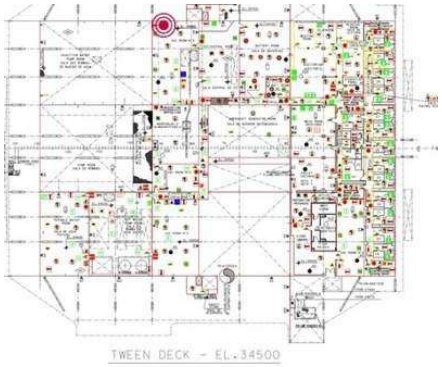
ɔn / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Risk Level Assessment	Remarks
Deck El.34500 nodation	Asbestos	Sampling	A27	Not Contained			

ɔendix - Report of visual checks and sampling locations – Not Contained

hot water-Insulation-Hot Water Pump Room / 109 STB							
Deck El.34500 nodation	Asbestos	Sampling	A33	Not Contained			
er tank-Insulation-Potable Water Room (AQ -B) / Frame 122 STB							

ɔn / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Risk Level Assessment	Remarks
Deck El.34500 nodation	Asbestos	Sampling	A17	Not Contained			

ɔendix - Report of visual checks and sampling locations – Not Contained

aneous-Insulation-Messroom corridor / Frame							
Deck El.34500 nodation	Asbestos	Sampling	A23	Not Contained			
· Air systems-Insulation-VAC Room No.5 / 39 PS							

ɔn / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Risk Level Assessment	Remarks
Deck El.34500 nodation	Asbestos	Sampling	A21	Not Contained			

ɔendix - Report of visual checks and sampling locations – Not Contained

nodation - Wall-Insulation-Reading Room / 34 Ps							
Deck El.34500 nodation	Asbestos	Sampling	A31	Not Contained			
· hot water-Insulation-Hot Water Pump Room / 110 STB							

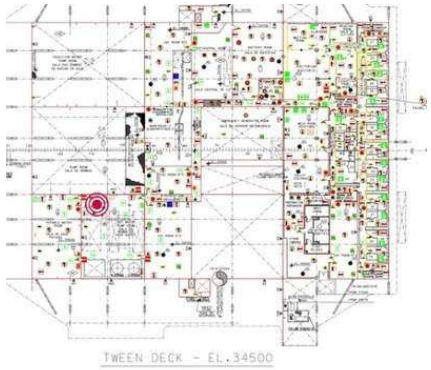
ɔn / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Risk Level Assessment	Remarks
Deck El.34500 nodation	Asbestos	Sampling	A16	Not Contained			

ɔendix - Report of visual checks and sampling locations – Not Contained

nodation - Floor-Floor covering-Messroom / Floor cover / Frame 33 CL							
Deck El.34500 nodation	Asbestos	Sampling	A28	Not Contained			
g material and insulation-Lagging material-Hot Pump Room / Frame 109 STB							

ɔn / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Risk Level Assessment	Remarks
Deck El.34500 nodation	Asbestos	Sampling	A14	Not Contained			

ɔendix - Report of visual checks and sampling locations – Not Contained

nodation - Wall-Insulation-VAC Room No.2 - 34 STB							
Deck El.34500 nodation	Asbestos	Sampling	A30	Not Contained			
ɡ material and insulation-Lagging material-Hot Pump Room / Frame 107 STB							

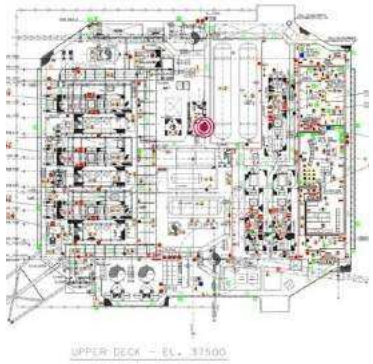
ɔn / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Risk Level Assessment	Remarks
Deck El.34500 nodation	Asbestos	Sampling	A32	Not Contained			

ɔendix - Report of visual checks and sampling locations – Not Contained

hot water-Insulation-Hot Water Pump Room / 124 STB							
Deck El.37500 nodation	Asbestos	Sampling	A12	Not Contained			
aneous-Door Seal-Laboratory / rubber door / Fr. 20 - STB							

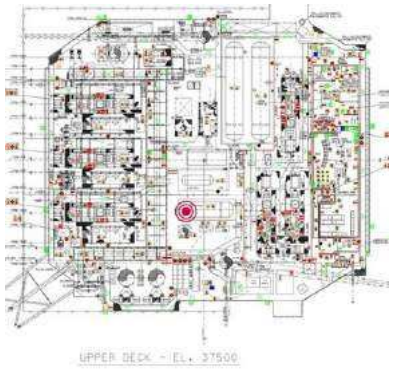
on / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Risk Level Assessment	Remarks
Deck El.37500 Area	Asbestos	Sampling	A55	Not Contained			

ɔendix - Report of visual checks and sampling locations – Not Contained

aneous-Insulation-Tank TQ V533601 / Frame 95							
Deck El.37500 Area	Asbestos	Sampling	A51	Not Contained			
aneous-Insulation-Tank TQ V123301 / Frame 67							
Deck El.37500 Area	Asbestos	Sampling	A53	Not Contained			

ɔn / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Risk Level Assessment	Remarks

ɔendix - Report of visual checks and sampling locations – Not Contained

Miscellaneous-Insulation-Glicol piping / Frame							
Deck El.37500 Area	Asbestos	Sampling	A58	Not Contained			
aneous-Insulation-Atmospheric Separator 303 / Frame 93 STB							

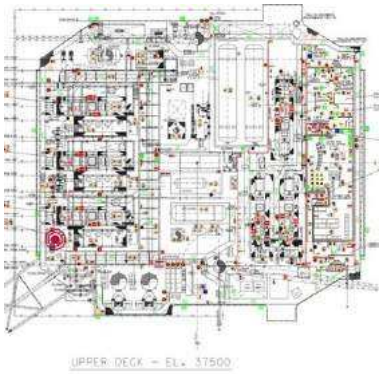
ɔn / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Risk Level Assessment	Remarks
Deck El.37500 Area	Asbestos	Sampling	A52	Not Contained			

ɔendix - Report of visual checks and sampling locations – Not Contained

aneous-Insulation-Gas hydration Tank TQ 3 / Frame 68 PS							
Deck El.37500 Area	Asbestos	Sampling	A57	Not Contained			
· Miscellaneous-Insulation-Attached to TQ 1 / Frame 93 STB							

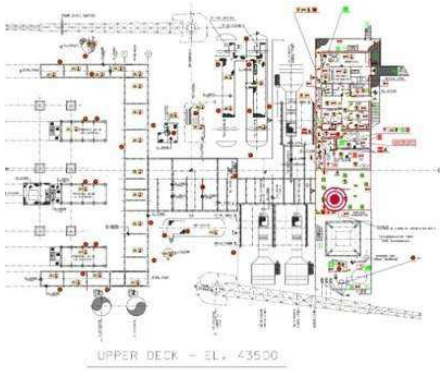
ɔn / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Risk Level Assessment	Remarks
Deck El.37500 Area	Asbestos	Sampling	A56	Not Contained			

ɔendix - Report of visual checks and sampling locations – Not Contained

· Miscellaneous-Insulation-Piping Frame 75 CL							
)eck El.37500 Area	Asbestos	Sampling	A59	Not Contained			
ɛssor-Insulation-Booster Compressor discharge ɛr V-UC-122302 / Frame 135 STB							

ɔn / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Risk Level Assessment	Remarks
)eck El.37500 Area	Asbestos	Sampling	A54	Not Contained			

ɔendix - Report of visual checks and sampling locations – Not Contained

Miscellaneous-Insulation-Piping P513502							
Deck El.43500 nodation	Asbestos	Sampling	A8	Not Contained			
tem-Insulation-VAC room No.1 / piping on / Fr. 30 - STB							

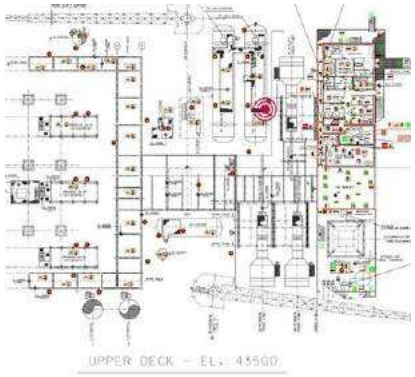
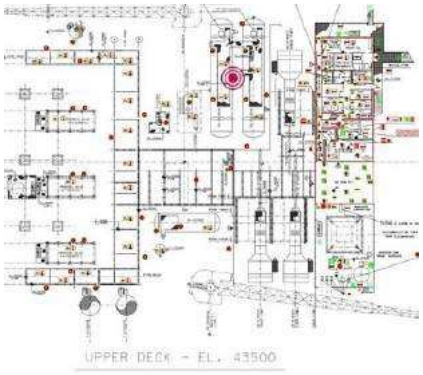
on / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Risk Level Assessment	Remarks
Deck El.43500 nodation	Asbestos	Sampling	A10	Not Contained			

ɔendix - Report of visual checks and sampling locations – Not Contained

tem-Insulation-VAC room No.1 / piping ɔn / Fr. 17 STB							
Deck El.43500 nodation	Asbestos	Sampling	A11	Not Contained			
nodation - Wall-Insulation-VAC room No. 1 / ıd insulation / Fr. 15 STB							

ɔn / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Risk Level Assessment	Remarks
Deck El.43500 Area	Asbestos	Sampling	A48	Not Contained			

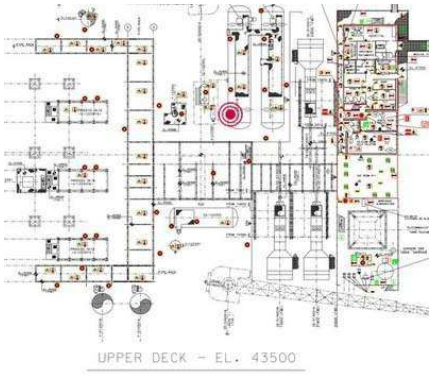
ɔendix - Report of visual checks and sampling locations – Not Contained

aneous-Insulation-Desalter Tank - Tq 122301A / 49 PS							
Deck El.43500 Area	Asbestos	Sampling	A50	Not Contained			
Miscellaneous-Insulation-Attached to TQ B / Frame 59 PS							

ɔn / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample res ılt	Quantity	Risk Level Assessment	Remarks
Deck El.43500 Area	Asbestos	Sampling	A49	Not Contained			

Inventory of Hazardous Materials

ɔendix - Report of visual checks and sampling locations – Not Contained

aneous-Insulation-Desalter Tank TQ 122301B / 34 PS			

her HazMats (non Asbestos) Management

ɔn / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Remarks
eck El.31500 nodation	ODS	Visual	A106	Not Contained		

ditioner (compressor)-Refrigerants-Emergency or room / Frame 61 PS			

eck El.31500 nodation	PFOS	Sampling	A34	Not Contained		

ɔendix - Report of visual checks and sampling locations – Not Contained

ɔvering-Floor covering-Normal Electrical Panels Frame 52 STB						
n / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Remarks
eck El.31500 nodation	HBCDD	Sampling	A61	Not Contained		
nodation - Floor-Floor covering-Cabin corridor / 24 STB						
eck El.31500 nodation	ODS	Sampling	A39	Not Contained		

ɔendix - Report of visual checks and sampling locations – Not Contained

nodation - Ceiling-Insulation-Electrical op / Frame 34 PS						
n / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Remarks
eck El.31500 nodation	ODS	Visual	A105	Not Contained		
ditioner (compressor)-Refrigerants-Emergency or room / Frame 50 PS					
eck El.31500 eck	ODS	Sampling	A67	Not Contained		

ɔendix - Report of visual checks and sampling locations – Not Contained

ad plating-Insulation-Bulkhead insulation / 49 PS			

n / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Remarks
eck El.31500 eck	ODS	Sampling	A72	Not Contained		

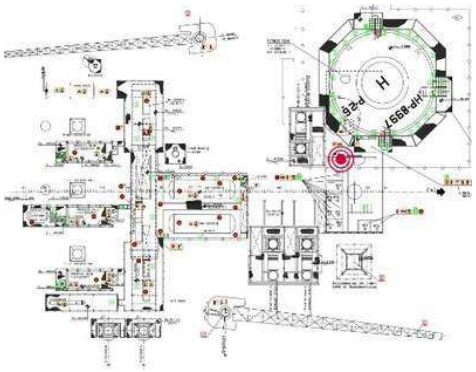
g material and insulation-Insulation-Low Flare Q V541202 / Frame 108 STB			

eck El.31500 eck	ODS	Visual	A111	Not Contained		

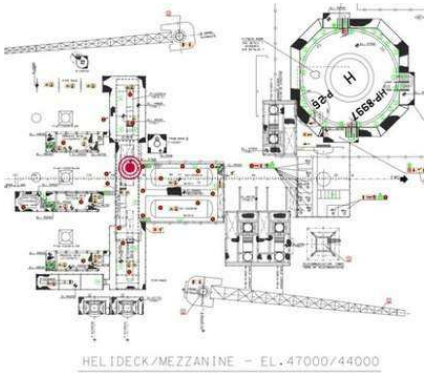
ɔendix - Report of visual checks and sampling locations – Not Contained

rant-Refrigerants-Refrigeranting gas packing Frame 74 STB			

n / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Remarks
ıine Deck 0/44000 nodation	ODS	Sampling	A5	Not Contained		

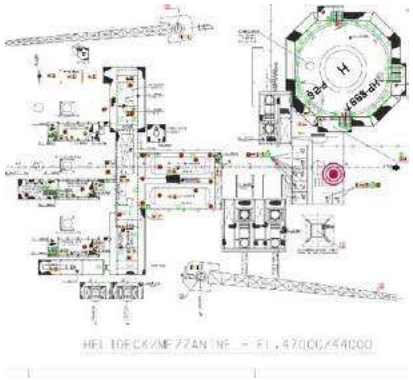
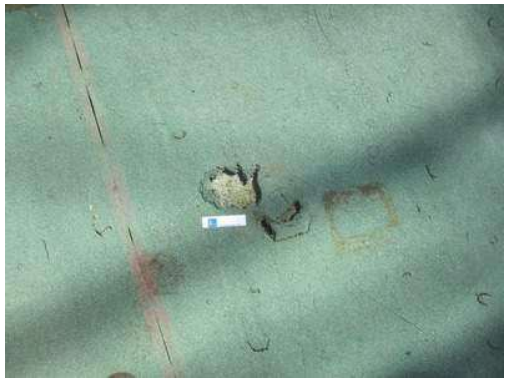
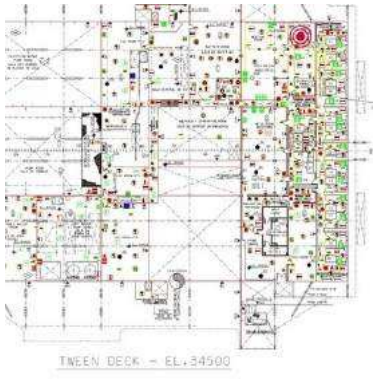
cable penetrations-Putty-Under helideck / al cable MCT / Fr. 31 PS			

ɔendix - Report of visual checks and sampling locations – Not Contained

ıine Deck 0/44000 ırea	ODS	Sampling	A79	Not Contained		
ɻ material and insulation-Insulation-Tank P A / Frame 97 STB						

ɔn / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Remarks
ıine Deck 0/44000 ɑneous	PFOS	Sampling	A3	Not Contained		

ɔendix - Report of visual checks and sampling locations – Not Contained

nodation Decks-Floor covering-Football field / ɨ / Fr. 20 - STB							
Deck El.34500 nodation	ODS	Sampling	A20	Not Contained			
nodation - Ceiling-Insulation-Reading Room / 30 PS							

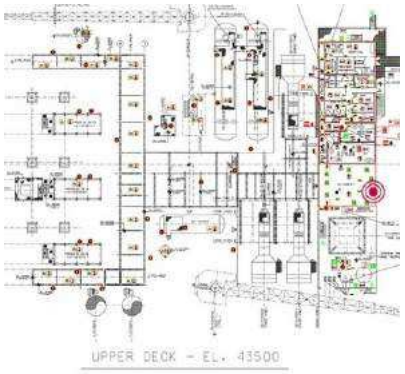
ɔn / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Remarks
Deck El.37500 nodation	HBCDD	Sampling	A1	Not Contained		

ɔendix - Report of visual checks and sampling locations – Not Contained

nodation - Floor-Floor covering-Control room / e / Fr. 47 - STB							
Deck El.37500 Area	TBT	Sampling	A60	Not Contained			
ery space coatings-Coatings & paint-Walkway / 120 STB							

n / Zone / Deck	Expected Hazardous Materials	Check procedure	Sample No.	Sample result	Quantity	Remarks
Deck El.43500 nodation	ODS	Visual	A102	Not Contained		

ɔendix - Report of visual checks and sampling locations – Not Contained

ditioner (compressor)-Refrigerants-VAC Room rame 15 STB			

oporting documents

- Attachment 1: Analysis report collected samples
- Attachment 2: Accreditation of laboratory
- Attachment 3: HazMat Expert Certificate
- Attachment 4: IHM Expert Company Certificate
- Attachment 5: IAPP certificate
- Attachment 6: DNV class status
- Attachment 7: Product list
- Attachment 8: Maritime Unit Descrition- Attachment 9: Batteries quantity

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AB-1408-T
23-05-G514
05-23

İŞ HIJYENI KATI MALZEMELERDE ASBEST TÜR TAYİNİ RAPORU

Müşteri Adı : ***BUREAU VERITAS MARINE & OFFSHORE (SHIP NAME : PETROBRAS 26)*** Customer Name :

Teklif Numarası : ***Mit6912-T12*** Order No :

Numune Alma Tarihi: ***19.01.2023*** Sampling date:

Numunenin adı ve tarifi: ***Asbest Içerebilecek Katı Materyal*** Name and identity of the test item : *Solid material that may contain asbestos*

Numunenin kabul tarihi: ***20.01.2023*** The date of receipt of the test item :

Açıklamalar: ***Yapılan laboratuvar testleri sonucunda aşağıda açıklanan numunelerde asbest lifi tespit edilmemiştir.*** Remarks :

As a result of laboratory analyses, asbestos fibres have not been detected in the samples defined below.

Numune Analiz Tarihi: ***21.01.2023*** Date of test :

Raporun sayfa sayısı: 22 Sayfa Number of pages of the report: *22*

Deney laboratuarı olarak faaliyet gösteren Global Asbest Raporlama Hizmetleri Tic Ltd. Şti. , TÜRKAK 'tan AB-1408-T ile 17025/2012 göre akredite edilmiştir. Global Asbest Raporlama Hizmetleri Tic Ltd. Şti. accredited by TÜRKAK under registration number AB-1408-T for 17025/2012 as test laboratory "
Türk Akreditasyon Kurumu (TÜRKAK) deney raporlarının tanınması konusunda Avrupa Akreditasyon birliği (EA) ve uluslar arası laboratuvar akreditasypn birliği (ILAC) ile karşılıklı tanınma anlaşması imzalanmıştır.
The Turkish accreditaion Agency (TURKAK) is signatory to the multilateral agreements of the European co-operation for the accreditaion (EA) and of the International Labrotory Accreditation (ILAC) for the mutual recognatiin of the reports.
Deney ve/veya ölçüm sonuçları, genişletilmiş ölçüm belirsizlikleri (olması halinde) ve deney metotları bu sertifikanın tamamlayıcı kısmı olan takip eden sayfalarda verilmiştir.
The test and /or mearusement results, the uncertainties (if applicable) with confidence probability and test methods are given on on the following pages which are part of this reports.

Mühür/Kaşe	*Tarih* *date*	*Deney Sorumlusu* *Test Responsibility*	*Onay/Laboratuvar Müdürü* *Approved by Laboratory Manager*
GLOBAL ASBEST Rp. Hizmetleri Tic. Ltd. Şti. Çamlık Mah. İkbal Cad. No:166/6 Ümraniye/İstanbul Alemdağ V.D. 396 104 0326	**23.01.2023**	M. ÇAĞRI ÇOLAK Laboratuvar Teknikeri Dip. No: 201750080267	VOLKAN YILMAZ ASBEST SÖKÜM UZMANI A Sınıfı İş Güvenliği Uzmanı Belge No : 280
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Report No: **23-05-G514**

CONTENTS

Report No: **23-05-G514**

SECTION 1: Instrument Information Used in Analysis

Equipment Name	Manufacturer / Model	Serial Number
Polarized Light Microscope	Bab-Lam	2015:31
Stereo Microscope	Bab-STR45	2015:133

TITLE	BUREAU VERITAS MARINE & OFFSHORE (SHIP NAME : PETROBRAS 26)
NUMBER	-
FAX	-

Table 1.1. Used Asbestos Analyzers

SECTION 2: Company Information

Table 2 Company Information

Report No: **23-05-G514**

STANDARD, METHODS AND REGULATIONS

Measurement Parameter	STANDARD / REGULATION / METHOD USED
Asbestos Specimen Anal ˈsis Methods in Solid Samples	Asbestos Specimen Analysis in Solid Samples using dispersion staining under PLM light microscope with NIOSH Manual of Analytical Methods (NMAM)9002
Regulations	Implementing Regulation on Health and Safety Measures in Working with Asbestos

SECTION 3.1: Analysis Method

62 samples were taken from the **PETROBRAS 26** vessel and analyzed in accordance with the principles specified in the NIOSH Manual of Analytical Methods (NMAM)9002 asbestos guide in our laboratory.

SECTION 3.2: Information on samples taken

Order No	Sample No.	Lab-Code	Test materia	Sample Description	Result
1)	BV Solutions A04	G514-BV Solutions A04	Catwalk floor	Floor structure	No Asbestos*
2)	BV Solutions A06	G514-BV Solutions A06	Insulation	Duct insulation	No Asbestos*
3)	BV Solutions A07	G514-BV Solutions A07	Insulation	Bulkhead insulation	No Asbestos*
4)	BV Solutions A08	G514-BV Solutions A08	Insulation	Duct insulation	No Asbestos*
5)	BV Solutions A10	G514-BV Solutions A10	Insulation	Piping insulation	No Asbestos*
6)	BV Solutions A11	G514-BV Solutions A11	Insulation	Bulkhead insulation	No Asbestos*
7)	BV Solutions A12	G514-BV Solutions A12	Rubber packing	Rubber door sealing	No Asbestos*
8)	BV Solutions A14	G514-BV Solutions A14	Insulation	Bulkhead insulation	No Asbestos*
9)	BV Solutions A15	G514-BV Solutions A15	Insulation	Piping insulation	No Asbestos*
10)	BV Solutions A16	G514-BV Solutions A16	Floor cover	Floor tile	No Asbestos*
11)	BV Solutions A17	G514-BV Solutions A17	Insulation	Door insulation	No Asbestos*
12)	BV Solutions A18	G514-BV Solutions A18	Lagging	Door insulation	No Asbestos*
13)	BV Solutions A21	G514-BV Solutions A21	Insulation	Bulkhead insulation	No Asbestos*
14)	BV Solutions A22	G514-BV Solutions A22	Rubber	Electrical ruuber fllor	No Asbestos*
15)	BV Solutions A23	G514-BV Solutions A23	Insulation	Piping insulation	No Asbestos*
16)	BV Solutions A26	G514-BV Solutions A26	Foam	Duct flap	No Asbestos*
17)	BV Solutions A27	G514-BV Solutions A27	Insulation	Piping insulation	No Asbestos*
18)	BV Solutions A28	G514-BV Solutions A28	Lagging	Piping insulation	No Asbestos*
19)	BV Solutions A29	G514-BV Solutions A29	Insulation	Piping insulation	No Asbestos*
20)	BV Solutions A30	G514-BV Solutions A30	Lagging	Piping insulation	No Asbestos*
21)	BV Solutions A31	G514-BV Solutions A31	Insulation	Piping insulation	No Asbestos*
22)	BV Solutions A32	G514-BV Solutions A32	Insulation	Piping insulation	No Asbestos*
23)	BV Solutions A33	G514-BV Solutions A33	Insulation	Water heater insulation	No Asbestos*
24)	BV Solutions A35	G514-BV Solutions A35	Rubber	Electrical ruuber fllor	No Asbestos*
25)	BV Solutions A36	G514-BV Solutions A36	Insulation	DGE discharge gas piping	No Asbestos*
26)	BV Solutions A37	G514-BV Solutions A37	Insulation	Bulkhead insulation	No Asbestos*
27)	BV Solutions A38	G514-BV Solutions A38	Insulation	Bulkhead insulation	No Asbestos*
28)	BV Solutions A40	G514-BV Solutions A40	Lagging	Ceiling insulation	No Asbestos*
29)	BV Solutions A41	G514-BV Solutions A41	Gasket	Spare gasket	No Asbestos*
30)	BV Solutions A42	G514-BV Solutions A42	Foam	Air compressor filter	No Asbestos*

Table 3.2.1: Information on Asbestos Samples Taken

Report No: **23-05-G514**

Order No	Sample No.	Lab-Code	Test materia	Sample Description	Result
31)	BV Solutions A43	G514-BV Solutions A43	Insulation	Piping insulation	No Asbestos*
32)	BV Solutions A44	G514-BV Solutions A44	Insulation	Piping insulation	No Asbestos*
33)	BV Solutions A45	G514-BV Solutions A45	Insulation	Piping insulation	No Asbestos*
34)	BV Solutions A46	G514-BV Solutions A46	Insulation	Piping insulation	No Asbestos*
35)	BV Solutions A47	G514-BV Solutions A47	Lagging	Piping insulation	No Asbestos*
36)	BV Solutions A48	G514-BV Solutions A48	Insulation	Tank insulation	No Asbestos*
37)	BV Solutions A49	G514-BV Solutions A49	Insulation	Tank insulation	No Asbestos*
38)	BV Solutions A50	G514-BV Solutions A50	Insulation	Piping insulation	No Asbestos*
39)	BV Solutions A51	G514-BV Solutions A51	Insulation	Tank insulation	No Asbestos*
40)	BV Solutions A52	G514-BV Solutions A52	Insulation	Tank insulation	No Asbestos*
41)	BV Solutions A53	G514-BV Solutions A53	Insulation	Piping insulation	No Asbestos*
42)	BV Solutions A54	G514-BV Solutions A54	Insulation	Piping insulation	No Asbestos*
43)	BV Solutions A55	G514-BV Solutions A55	Insulation	Tank insulation	No Asbestos*
44)	BV Solutions A56	G514-BV Solutions A56	Insulation	Piping insulation	No Asbestos*
45)	BV Solutions A57	G514-BV Solutions A57	Insulation	Piping insulation	No Asbestos*
46)	BV Solutions A58	G514-BV Solutions A58	Insulation	Tank insulation	No Asbestos*
47)	BV Solutions A59	G514-BV Solutions A59	Insulation	Tank insulation	No Asbestos*
48)	BV Solutions A63	G514-BV Solutions A63	Insulation	Bulkhead insulation	No Asbestos*
49)	BV Solutions A64	G514-BV Solutions A64	Rubber	Rubber fender	No Asbestos*
50)	BV Solutions A65	G514-BV Solutions A65	Cable tray	Electrical cable tray	No Asbestos*
51)	BV Solutions A66	G514-BV Solutions A66	Foam	Turbocharger filter	No Asbestos*
52)	BV Solutions A68	G514-BV Solutions A68	Insulation	Piping insulation	No Asbestos*
53)	BV Solutions A69	G514-BV Solutions A69	Insulation	Tank insulation	No Asbestos*
54)	BV Solutions A70	G514-BV Solutions A70	Insulation	Piping insulation	No Asbestos*
55)	BV Solutions A71	G514-BV Solutions A71	Insulation	Tank insulation	No Asbestos*
56)	BV Solutions A73	G514-BV Solutions A73	Insulation	Piping insulation	No Asbestos*
57)	BV Solutions A74	G514-BV Solutions A74	Insulation	Piping insulation	No Asbestos*
58)	BV Solutions A75	G514-BV Solutions A75	Insulation	Tank insulation	No Asbestos*
59)	BV Solutions A76	G514-BV Solutions A76	Insulation	Piping insulation	No Asbestos*
60)	BV Solutions A77	G514-BV Solutions A77	Insulation	Tank insulation	No Asbestos*
61)	BV Solutions A78	G514-BV Solutions A78	Insulation	Tank insulation	No Asbestos*
62)	BV Solutions A80	G514-BV Solutions A80	Insulation	Tank insulation	No Asbestos*

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** No Asbestos** defined as: Materials proved to have </= 0,1 % of asbestos fibre in the sample.*

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SELECTION 3.3: Measurement Results and Evaluation

NIOSH-NMAM 9002 Asbestos fiber was not found in the solid samples examined according to the asbestos guide and the results together with other solid samples are given in table 3.3.1.

** No Asbestos** defined as: Materials proved to have </= 0,1 % of asbestos fibre in the sample.* **Table 3.3.1: Asbestos Samples**

Sample No	Lab. Code	OBJECT TO CHECK	ASBESTOS TYPE	ASBESTOS GROUP	ASBESTOS COLOR	ANALYSIS RESULT	Semiquantitative Asbestos % rate
BV Solutions A04	G514-BV Solutions A04	Catwalk floor	Chrysotile	Serpentine	White	Negative	No Asbestos*
			Amosite	Amphibole	Brown	Negative	No Asbestos*
			Crocidolite	Amphibole	Blue	Negative	No Asbestos*
			Tremolite	Amphibole	White - Grey	Negative	No Asbestos*
			Anthophyllite	Amphibole	Grey - Brown	Negative	No Asbestos*
			Actinolite	Amphibole	White- Gr. -Br.	Negative	No Asbestos*
BV Solutions A06	G514-BV Solutions A06	Insulation	Chrysotile	Serpentine	White	Negative	No Asbestos*
			Amosite	Amphibole	Brown	Negative	No Asbestos*
			Crocidolite	Amphibole	Blue	Negative	No Asbestos*
			Tremolite	Amphibole	White - Grey	Negative	No Asbestos*
			Anthophyllite	Amphibole	Grey - Brown	Negative	No Asbestos*
			Actinolite	Amphibole	White- Gr. -Br.	Negative	No Asbestos*
BV Solutions A07	G514-BV Solutions A07	Insulation	Chrysotile	Serpentine	White	Negative	No Asbestos*
			Amosite	Amphibole	Brown	Negative	No Asbestos*
			Crocidolite	Amphibole	Blue	Negative	No Asbestos*
			Tremolite	Amphibole	White - Grey	Negative	No Asbestos*
			Anthophyllite	Amphibole	Grey - Brown	Negative	No Asbestos*
			Actinolite	Amphibole	White- Gr. -Br.	Negative	No Asbestos*
BV Solutions A08	G514-BV Solutions A08	Insulation	Chrysotile	Serpentine	White	Negative	No Asbestos*
			Amosite	Amphibole	Brown	Negative	No Asbestos*
			Crocidolite	Amphibole	Blue	Negative	No Asbestos*
			Tremolite	Amphibole	White - Grey	Negative	No Asbestos*
			Anthophyllite	Amphibole	Grey - Brown	Negative	No Asbestos*
			Actinolite	Amphibole	White- Gr. -Br.	Negative	No Asbestos*
BV Solutions A10	G514-BV Solutions A10	Insulation	Chrysotile	Serpentine	White	Negative	No Asbestos*
			Amosite	Amphibole	Brown	Negative	No Asbestos*
			Crocidolite	Amphibole	Blue	Negative	No Asbestos*
			Tremolite	Amphibole	White - Grey	Negative	No Asbestos*
			Anthophyllite	Amphibole	Grey - Brown	Negative	No Asbestos*
			Actinolite	Amphibole	White- Gr. -Br.	Negative	No Asbestos*
BV Solutions A11	G514-BV Solutions A11	Insulation	Chrysotile	Serpentine	White	Negative	No Asbestos*
			Amosite	Amphibole	Brown	Negative	No Asbestos*
			Crocidolite	Amphibole	Blue	Negative	No Asbestos*
			Tremolite	Amphibole	White - Grey	Negative	No Asbestos*
			Anthophyllite	Amphibole	Grey - Brown	Negative	No Asbestos*
			Actinolite	Amphibole	White- Gr. -Br.	Negative	No Asbestos*
BV Solutions A12	G514-BV Solutions A12	Rubber packing	Chrysotile	Serpentine	White	Negative	No Asbestos*
			Amosite	Amphibole	Brown	Negative	No Asbestos*
			Crocidolite	Amphibole	Blue	Negative	No Asbestos*
			Tremolite	Amphibole	White - Grey	Negative	No Asbestos*
			Anthophyllite	Amphibole	Grey - Brown	Negative	No Asbestos*

			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****

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Sample No	Lab. Code	OBJECT TO CHECK	ASBESTOS TYPE	ASBESTOS GROUP	ASBESTOS COLOR	ANALYSIS RESULT	Semiquantitative Asbestos % rate
BV Solutions A14	G514-BV Solutions A14	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A15	G514-BV Solutions A15	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A16	G514-BV Solutions A16	Floor cover	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A17	G514-BV Solutions A17	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A18	G514-BV Solutions A18	Lagging	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A21	G514-BV Solutions A21	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A22	G514-BV Solutions A22	Rubber	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A23	G514-BV Solutions A23	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****

Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****

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Sample No	Lab. Code	OBJECT TO CHECK	ASBESTOS TYPE	ASBESTOS GROUP	ASBESTOS COLOR	ANALYSIS RESULT	Semiquantitative Asbestos % rate
BV Solutions A26	G514-BV Solutions A26	Foam	Chrysotile	Serpentine	White	Negative	No Asbestos*
			Amosite	Amphibole	Brown	Negative	No Asbestos*
			Crocidolite	Amphibole	Blue	Negative	No Asbestos*
			Tremolite	Amphibole	White - Grey	Negative	No Asbestos*
			Anthophyllite	Amphibole	Grey - Brown	Negative	No Asbestos*
			Actinolite	Amphibole	White- Gr. -Br.	Negative	No Asbestos*
BV Solutions A27	G514-BV Solutions A27	Insulation	Chrysotile	Serpentine	White	Negative	No Asbestos*
			Amosite	Amphibole	Brown	Negative	No Asbestos*
			Crocidolite	Amphibole	Blue	Negative	No Asbestos*
			Tremolite	Amphibole	White - Grey	Negative	No Asbestos*
			Anthophyllite	Amphibole	Grey - Brown	Negative	No Asbestos*
			Actinolite	Amphibole	White- Gr. -Br.	Negative	No Asbestos*
BV Solutions A28	G514-BV Solutions A28	Lagging	Chrysotile	Serpentine	White	Negative	No Asbestos*
			Amosite	Amphibole	Brown	Negative	No Asbestos*
			Crocidolite	Amphibole	Blue	Negative	No Asbestos*
			Tremolite	Amphibole	White - Grey	Negative	No Asbestos*
			Anthophyllite	Amphibole	Grey - Brown	Negative	No Asbestos*
			Actinolite	Amphibole	White- Gr. -Br.	Negative	No Asbestos*
BV Solutions A29	G514-BV Solutions A29	Insulation	Chrysotile	Serpentine	White	Negative	No Asbestos*
			Amosite	Amphibole	Brown	Negative	No Asbestos*
			Crocidolite	Amphibole	Blue	Negative	No Asbestos*
			Tremolite	Amphibole	White - Grey	Negative	No Asbestos*
			Anthophyllite	Amphibole	Grey - Brown	Negative	No Asbestos*
			Actinolite	Amphibole	White- Gr. -Br.	Negative	No Asbestos*
BV Solutions A30	G514-BV Solutions A30	Lagging	Chrysotile	Serpentine	White	Negative	No Asbestos*
			Amosite	Amphibole	Brown	Negative	No Asbestos*
			Crocidolite	Amphibole	Blue	Negative	No Asbestos*
			Tremolite	Amphibole	White - Grey	Negative	No Asbestos*
			Anthophyllite	Amphibole	Grey - Brown	Negative	No Asbestos*
			Actinolite	Amphibole	White- Gr. -Br.	Negative	No Asbestos*
BV Solutions A31	G514-BV Solutions A31	Insulation	Chrysotile	Serpentine	White	Negative	No Asbestos*
			Amosite	Amphibole	Brown	Negative	No Asbestos*
			Crocidolite	Amphibole	Blue	Negative	No Asbestos*
			Tremolite	Amphibole	White - Grey	Negative	No Asbestos*
			Anthophyllite	Amphibole	Grey - Brown	Negative	No Asbestos*
			Actinolite	Amphibole	White- Gr. -Br.	Negative	No Asbestos*
BV Solutions A32	G514-BV Solutions A32	Insulation	Chrysotile	Serpentine	White	Negative	No Asbestos*
			Amosite	Amphibole	Brown	Negative	No Asbestos*
			Crocidolite	Amphibole	Blue	Negative	No Asbestos*
			Tremolite	Amphibole	White - Grey	Negative	No Asbestos*
			Anthophyllite	Amphibole	Grey - Brown	Negative	No Asbestos*
			Actinolite	Amphibole	White- Gr. -Br.	Negative	No Asbestos*
BV Solutions A33	G514-BV Solutions A33	Insulation	Chrysotile	Serpentine	White	Negative	No Asbestos*
			Amosite	Amphibole	Brown	Negative	No Asbestos*
			Crocidolite	Amphibole	Blue	Negative	No Asbestos*
			Tremolite	Amphibole	White - Grey	Negative	No Asbestos*
			Anthophyllite	Amphibole	Grey - Brown	Negative	No Asbestos*
			Actinolite	Amphibole	White- Gr. -Br.	Negative	No Asbestos*
			Chrysotile	Serpentine	White	Negative	No Asbestos*
			Amosite	Amphibole	Brown	Negative	No Asbestos*

Sample No	Lab. Code	OBJECT TO CHECK	ASBESTOS TYPE	ASBESTOS GROUP	ASBESTOS COLOR	ANALYSIS RESULT	Semiquantitative Asbestos % rate
BV Solutions A35	G514-BV Solutions A35	Rubber	*Crocidolite*	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A36	G514-BV Solutions A36	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A37	G514-BV Solutions A37	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A38	G514-BV Solutions A38	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A40	G514-BV Solutions A40	Lagging	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A41	G514-BV Solutions A41	Gasket	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A42	G514-BV Solutions A42	Foam	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A43	G514-BV Solutions A43	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****

during sampling under the current process conditions. The results are limited only to the sample taken / imported. Test reports without signature and seal are not valid. Report No: **23-05-G514**

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AB-1408-T
23-05-G514
05-23

İŞ HİJYENİ KATI MALZEMELERDE ASBEST TÜR TAYİNİ RAPORU

Sample No	Lab. Code	OBJECT TO CHECK	ASBESTOS TYPE	ASBESTOS GROUP	ASBESTOS COLOR	ANALYSIS RESULT	Semiquantitative Asbestos % rate
BV Solutions A44	G514-BV Solutions A44	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A45	G514-BV Solutions A45	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A46	G514-BV Solutions A46	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A47	G514-BV Solutions A47	Lagging	*Chrysotile*	*Serpentine*	*White*	*Negative*	*No Asbestos**
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A48	G514-BV Solutions A48	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A49	G514-BV Solutions A49	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A50	G514-BV Solutions A50	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	*No Asbestos**
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A51	G514-BV Solutions A51	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions		Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****

A52	G514-BV				
	A52				
Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****	
Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****	
Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****	

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AB-1408-T
23-05-G514
05-23

İŞ HİJYENİ KATI MALZEMELERDE ASBEST TÜR TAYİNİ RAPORU

Sample No	Lab. Code	OBJECT TO CHECK	ASBESTOS TYPE	ASBESTOS GROUP	ASBESTOS COLOR	ANALYSIS RESULT	Semiquantitative Asbestos % rate
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A53	G514-BV Solutions A53	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A54	G514-BV Solutions A54	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A55	G514-BV Solutions A55	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A56	G514-BV Solutions A56	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A57	G514-BV Solutions A57	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A58	G514-BV Solutions A58	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A59	G514-BV Solutions A59	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A63	G514-BV Solutions A63	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****

Sample No	Lab. Code	OBJECT TO CHECK	ASBESTOS TYPE	ASBESTOS GROUP	ASBESTOS COLOR	ANALYSIS RESULT	Semiquantitative Asbestos % rate
BV Solutions A64	G514-BV Solutions A64	Rubber	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A65	G514-BV Solutions A65	Cable tray	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A66	G514-BV Solutions A66	Foam	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A68	G514-BV Solutions A68	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	*No Asbestos**
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A69	G514-BV Solutions A69	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	*No Asbestos**
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A70	G514-BV Solutions A70	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A71	G514-BV Solutions A71	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	*No Asbestos**
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A73	G514-BV Solutions A73	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
		Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****

Sample No	Lab. Code	OBJECT TO CHECK	ASBESTOS TYPE	ASBESTOS GROUP	ASBESTOS COLOR	ANALYSIS RESULT	Semiquantitative Asbestos % rate
BV Solutions A7	G514-BV Solutions A74		*Anthophyllite*	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A75	G514-BV Solutions A75	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	*No Asbestos**
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A76	G514-BV Solutions A76	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A77	G514-BV Solutions A77	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A78	G514-BV Solutions A78	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	*No Asbestos**
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****
BV Solutions A80	G514-BV Solutions A80	Insulation	*Chrysotile*	*Serpentine*	*White*	*Negative*	***No Asbestos****
			Amosite	*Amphibole*	*Brown*	*Negative*	***No Asbestos****
			Crocidolite	*Amphibole*	*Blue*	*Negative*	***No Asbestos****
			Tremolite	*Amphibole*	*White - Grey*	*Negative*	***No Asbestos****
			Anthophyllite	*Amphibole*	*Grey - Brown*	*Negative*	***No Asbestos****
			Actinolite	*Amphibole*	*White- Gr. -Br.*	*Negative*	***No Asbestos****

ANNEX 1 ; LABORATORY ACCREDITATION CERTIFICATE

ANNEX 2 ; SCOPE OF ACCREDITATION

ANNEX 3 ; SAMPLE PHOTOS

Report No: **23-05-G514**

Report No: **23-05-G514**

Report No: **23-05-G514**

Report No: **23-05-G514**

Report No: **23-05-G514**

ANALİTİK ÇEVRE ANALİZ VE LABORATUVAR HİZ. SAN. TİC. LTD. ŞTİ

AB-0825-T

Koşuyolu Mah. İsmail Paşa Sok. No:33/1 34718 Kadıköy/İSTANBUL

phone: +90 216 325 8855

R.05.016

05-23

PETROBRAS 26

'SHIP'

HAZARDOUS MATERIALS ANALYSIS REPORT

Report No	*Rep.2023.05.016*
Sampling Date	*Samples Were Taken By 'GLOBAL ASBEST COMPANY'*
Report Date	*15.05.2023*

Koşuyolu Mah. İsmail Paşa Sok. No:33/1 34718 Kadıköy/İSTANBUL

phone: +90 216 325 8855

R.05.016

05-23

List of Parties

CLIENT	
Name	**GLOBAL ASBEST**
Address	Çamlık Mahallesi, İkbal Caddesi, 166 - 4 Ümraniye / İstanbul
Contact	Mr. Volkan
Telephone Number	+90 533 590 21 23
e-mail	info@globalasbest.com
CONTRACTOR	
Company Name	AÇEVA – Analitik Cevre Analiz ve Laboratuvar Hizmetleri San.Tic. Ltd. Şti.
Address	Koşuyolu Mah. Ismail Paşa Sok. No:33/1 34718 Kadıköy / Istanbul / TURKEY

ANALİTİK ÇEVRE ANALİZ VE LABORATUVAR HİZ. SAN. TİC. LTD. ŞTİ

Tel & Fax Number	+90 216 325 8855
Contact	UĞUR BURSALI
TESTING LABORATORY	
Laboratory Name	AÇEVA - Analitik Cevre Analiz ve Laboratuvar Hizmetleri San. Tic. Ltd. Sti. / TURKEY

Inventory of Hazardous Materials

Koşuyolu Mah. İsmail Paşa Sok. No:33/1 34718 Kadıköy/İSTANBUL

phone: +90 216 325 8855

1. SAMPLE CODE AND PARAMETER LIST

Sample Code	Parameter for ANALYSIS
A02, A09, A13, A24, A25	PCBs
A5, A19, A20, A39, A62, A67, A72, A79	ODS*
A60	TBTs*
A3, A34	PFOS*
A1, A61	HBCDD

*İşaretli parametreler akreditasyon kapsamı dışındadır.

2. ANALYSIS RESULTS

Sample Code	RESULTS	Parameter for ANALYSIS
A02	0,019 mg	PCBs
A09	0,023 mg	
A13	<0,01	
A24	0,032 mg	
A25	<0,01	
A5	N/D	ODS
A19	<0,03	
A20	N/D	
A39	N/D	
A62	<0,03	
A67	N/D	
A72	N/D	
A79	N/D	
A3	N/D	PFOS
A34	N/D	
A60	N/D	TBTs*
A1	N/D	HBCDD
A61	N/D	

N/D: Not Detected <0,01: below the limit value <0,03 mg: below the limit value

Koşuyolu Mah. İsmail Paşa Sok. No:33/1 34718 Kadıköy/İSTANBUL

phone: +90 216 325 8855

3. SAMPLE PHOTOS

A01	A02	A03

		
A05	**A09**	**A13**
		

A19	A20	A24
		

A25	A34	A39
		

ANALİTİK ÇEVRE ANALİZ VE LABORATUVAR HİZ. SAN. TİC. LTD. ŞTİ
Koşuyolu Mah. İsmail Paşa Sok. No:33/1 34718 Kadıköy/İSTANBUL

phone: +90 216 325 8855

A60	A61	A62
		

A67	A72	A79
		

Certificate of Approval

Approving a Service Supplier engaged in Visual and/or Sampling Checks and preparation of Inventory of Hazardous Materials

No. ITB9/OTU/20200924185255

Issued within the scope of the Bureau Veritas Marine & Offshore Division General Conditions
Délivré dans le cadre des Conditions Générales de la Division Marine & Offshore du Bureau Veritas

Company: **GLOBAL ASBEST RAPORLAMA HIZMETLERI TIC. LTD. STI.**

Company address*: CAMLIK MAH. IKBAL CAD.
NO:166/6
UMRANIYE
34774 ISTANBUL
TURKEY

Scope of the approval:

Visual and/or Sampling Checks on board ships, development of IHM.

This is to certify that:

The undersigned Surveyor of the Society, acting within the Bureau Veritas Marine & Offshore General Conditions, has performed, at the Company's request, an assessment of the facilities, organisational structure and procedures of the said Service Supplier, in compliance with the relevant requirements of the Society Rule Note NR 533.

The facilities, organisational structure and procedures were found satisfactory for the servicing of the equipment described in the attached Schedule of Approval.

The Certificate is valid until**: 23 August 2023

Completion date of the assessment on which this certificate based: 24 September 2020

At: ISTANBUL on 24 September 2020

Bureau Veritas Surveyor's signature :

For BUREAU VERITAS
Serkan Kurtoglu

* *Refer to the appendix for the list of subsidiaries covered by this certificate*
** *Not later than 3 years after the date of evaluation*

The latest published Rules of the Bureau Veritas Marine & Offshore and the General Conditions thereto are applicable
Les dernières édition des Règlements du Bureau Veritas Marine & Offshore ainsi que les conditions Générales qui y figurent sont applicables

Ad NE1537

Bureau Veritas Marine & Offshore

IHM EXPERT CERTIFICATE

This is to certify that

Last Name : **OSSAMU YAMAKI** First Name : **Roberto**

Office : **MACAE (MEA0)** Country : **BRAZIL**

is authorized to carry out IHM development in accordance with EU Ship Recycling Regulation (1257/2013) and Hong-Kong Convention(2009).

Certificate validated on July 19, 2022

Printed on July 19, 2022

Data in Qualif application take precedence over this certificate.

Bureau Veritas **Marine & Offshore** **Consulting & Outsourcing** **IHM**	**Last name :** OSSAMU YAMAKI **First name :** Roberto **Office :** MACAE (MEA0) **Country :** BRAZIL

IHM EXPERT QUALIFICATION

TECHNICAL	
Certification	
IHM Expert	X

Printed on July 19, 2022

Data in Qualif application take precedence over this certificate.

INTERNATIONAL AIR POLLUTION PREVENTION CERTIFICATE

Certificate No:
n1825055-udq
DNV Id No:
17836
Date of issue:
2022-12-27

Issued under the provisions of the Protocol of 1997, as amended, to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 related thereto (hereinafter referred to as "the Convention")
under the authority of the Government of

THE REPUBLIC OF PANAMA

by **DNV**

Particulars of ship

Name of Ship:	**PETROBRAS 26**
Distinctive Number or Letters:	**HP-8997**
Port of Registry:	**PANAMA**
Gross Tonnage:	**20313**
IMO Number:	**8764169**

This is to certify:

1. that the ship has been surveyed in accordance with regulation 5 of Annex VI of the Convention; and

2. that the survey shows that the equipment, systems, fittings, arrangements and materials fully comply with the applicable requirements of Annex VI of the Convention.

This Certificate is valid until **2027-10-31** subject to surveys in accordance with Regulation 5 of Annex VI of the Convention.

Completion date of survey on which this Certificate is based: **2022-10-27**

Issued at **Hamburg, Germany** on **2022-12-27**

Certificate No: **n1825055-udq**
Date of issue: **2022-12-27**

for **DNV**

This document is signed electronically in accordance with IMO FAL.5/Circ.39/Rev.2. Validation and authentication can be obtained from trust.dnv.com by using the Unique Tracking Number (UTN):
n1825055-udq and ID: 17836

Anica Mosig

Endorsement for annual and intermediate surveys

THIS IS TO CERTIFY:
that, at a survey required by provisions of that Annex.

lation 5 of Annex VI of the Convention,

the ship was found to comply with th relevant

Place:

Date:

Annual survey:

Signature:

Stamp

Place:

Date:

Signature:

Certificate No: **n1825055-udq**
Date of issue: **2022-12-27**

Annual/Intermediate[1] survey: ..... Date: .....

Stamp

Place: ..... Signature: .....

Annual/Intermediate[1] survey:

Stamp

Place: ..... Date: .....

Annual survey: Signature: .....

Stamp

Annual/intermediate survey in accordance with Regulation 9.8.3

AISA

THIS IS TO CERTIFY that, at an annual/intermediate[1] survey in accordance with Regulation 9.8.3 of Annex VI of the Convention, the ship was found to comply with the relevant provisions of that Annex.

Place: ..... Date: .....

Signature: .....

Stamp

Endorsement to extend the Certificate if valid for less than 5 years where Regulation 9.3 applies

EEVF

The ship complies with the relevant provisions of the Annex, and this Certificate shall, in accordance with Regulation 9.3 of Annex VI of the Convention, be accepted as valid until .....

Place: ..... Date: .....

Certificate No: **n1825055-udq**
Date of issue: **2022-12-27**

Signature: .....

Stamp

---

1 Delete as appropriate.

Endorsement where the renewal survey has been completed and Regulation 9.4 applies *ERC*

The ship complies with the relevant provisions of the Annex, and this Certificate shall, in accordance with Regulation 9.4 of Annex VI of the Convention, be accepted as valid until .....

Place: ..... Date: .....

Signature: .....

Stamp

Endorsement to extend the validity of the Certificate until reaching the port of survey or for a period of grace where Regulation 9.5 or 9.6 applies *EEV*

This Certificate shall, in accordance with Regulation 9.5 or 9.6[1] of Annex VI of the Convention, be accepted as valid until .....

Place: ..... Date: .....

Signature: .....

Stamp

Endorsement for advancement of anniversary date where Regulation 9.8 applies *EAA*

In accordance with Regulation 9.8 of Annex VI of the Convention, the new anniversary date is .....

Place: ..... Date: .....

Certificate No: **n1825055-udq**
Date of issue: **2022-12-27**

Signature: .....

Stamp

In accordance with Regulation 9.8 of Annex VI of the Convention, the new anniversary date is .....

Place: ..... Date: .....

Signature: .....

Stamp

SUPPLEMENT TO INTERNATIONAL AIR POLLUTION PREVENTION CERTIFICATE

(IAPP CERTIFICATE)

RECORD OF CONSTRUCTION AND EQUIPMENT

In respect of the provisions of Annex VI of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (hereinafter referred to as “the Convention”).

This Record shall be permanently attached to the IAPP Certificate. The IAPP Certificate shall be available on board the ship at all times.

The Record shall be at least in English, French or Spanish. If an official language of the issuing country is also used, this shall prevail in case of a dispute or discrepancy.

Entries in boxes shall be made by inserting either a cross (x) for the answers "yes" and "applicable" or a dash (-) for the answers "no" and "not applicable" as appropriate.

Unless otherwise stated, regulations mentioned in this Record refer to regulations of Annex VI of the Convention and resolutions or circulars refer to those adopted by the International Maritime Organization.

1. Particulars of ship

Name of Ship:	**PETROBRAS 26**
IMO Number:	**8764169**
Date on which keel was laid or ship was at similar stage of construction:	**1984-01-01**
Length of Ship: [1]	**- m**

2. Control of emissions from ships

[1] Completed only in respect of ships constructed on or after 1 January 2016 that are specially designed, and used solely, for recreational purposes and to which, in accordance with regulation 13.5.2.1 or regulation 13.5.2.3, the NOx emission limit as given by regulation 13.5.1.1 will not apply.

2.1 Ozone-depleting substances (Regulation 12)

2.1.1 The following fire-extinguishing systems, other systems and equipment containing ozone-depleting substances, other than hydro-chlorofluorocarbons (HCFCs), installed before 19 May 2005 may continue in service: ☐

System equipment	Location on board	Substance

2.1.2 The following systems and equipment containing hydro-chlorofluorocarbons (HCFCs) installed before 1 January 2020 may continue in service: ☐

System equipment	Location on board	Substance

2.2 Nitrogen Oxides (NOx) (Regulation 13)

2.2.1 The following marine diesel engines installed on this ship are in accordance with the requirements of regulation 13, as indicated:

Applicable regulation of MARPOL Annex VI (NTC = NOX Technical Code 2008) (AM = Approved Method)		Engine #1	Engine #2	Engine #3	Engine #4	Engine #5	Engine #6
1	Manufacturer and model						
2	Serial Number						
	Use application cycle(s) – NTC						
	Rated power						
	Rated speed						
3	(applicable 3.2)						
4	(kW) (NTC 1.3.11)						
5	(RPM) (NTC 1.3.12)						
6	Identical engine installed ≥ 2000-01-01 exempted by 13.1.1.2	☐	☐	☐	☐	☐	☐

7	Identical engine installation date as per 13.1.1.2 (yyyy-mm-dd)							
8a	Major Conversion (yyyy-mm-dd)	13.2.1.1 & 13.2.2						
8b		13.2.1.2 & 13.2.3						
8c		13.2.1.3 & 13.2.3						
9a	Tier I	13.3	☐	☐	☐	☐	☐	☐
9b		13.2.2	☐	☐	☐	☐	☐	☐
9c		13.2.3.1	☐	☐	☐	☐	☐	☐
9d		13.2.3.2	☐	☐	☐	☐	☐	☐
9e		13.7.1.2	☐	☐	☐	☐	☐	☐
10a	Tier II	13.4	☐	☐	☐	☐	☐	☐
10b		13.2.2	☐	☐	☐	☐	☐	☐
10c		13.2.2 (Tier III not possible)	☐	☐	☐	☐	☐	☐
10d		13.2.3.2	☐	☐	☐	☐	☐	☐
10e		13.5.2 (Exemptions)	☐	☐	☐	☐	☐	☐
10f		13.7.1.2	☐	☐	☐	☐	☐	☐
11a	Tier III (ECA-NOx only)	13.5.1.1	☐	☐	☐	☐	☐	☐
11b		13.2.2	☐	☐	☐	☐	☐	☐
11c		13.2.3.2	☐	☐	☐	☐	☐	☐
11d		13.7.1.2	☐	☐	☐	☐	☐	☐
12	AM[3]	installed	☐	☐	☐	☐	☐	☐
13		not commercially available at this survey	☐	☐	☐	☐	☐	☐
14		not applicable	☐	☐	☐	☐	☐	☐

2.3 Sulphur Oxides (SOx) and particulate matter (Regulation 14)

2.3.1 When the ship operates outside of an Emission Control Area specified in regulation 14.3, the ship uses:

2.3.1.1 fuel oil with a sulphur content as documented by bunker delivery notes that does not exceed the limit value [X] of 0.50% m/m, and/or

2.3.1.2 an equivalent arrangement approved in accordance with regulation 4.1 as listed in paragraph 2.6 that is at least as effective in terms of SO_X emission reductions as compared to using a fuel oil with a sulphur content limit value of 0.50% m/m [-]

2.3.2 When the ship operates inside an Emission Control Area specified in regulation 14.3, the ship uses:

2.3.2.1 fuel oil with a sulphur content as documented by bunker delivery notes that does not exceed the limit value [X] of 0.10% m/m, and/or

2.3.2.2 an equivalent arrangement approved in accordance with regulation 4.1 as listed in paragraph 2.6 that is at least as effective in terms of SO_X emission reductions as compared to using a fuel oil with a sulphur content limit value of 0.10% m/m [-]

2.3.3 For a ship without an equivalent arrangement approved in accordance with regulation 4.1 as listed in paragraph 2.6, the sulphur content of fuel oil carried for use on board the ship shall not exceed 0.50% m/m as documented by bunker delivery notes [X]

2.3.4 The ship is fitted with designated sampling point(s) in accordance with regulation 14.10 or 14.11 [X]

2.3.5 In accordance with regulation 14.12, the requirement for fitting or designating sampling point(s) in accordance with regulation 14.10 or 14.11 is not applicable for a fuel oil service system for a low-flashpoint fuel for combustion purposes for propulsion or operation on board the ship [-]

3 Refer to the 2014 Guidelines on the approved method process (resolution MEPC.243(66)).

☒

2.4 Volatile organic compounds (VOCs) (Regulation 15)

2.4.1 The tanker has a vapour collection system installed and approved in accordance with IMO MSC/Circ.585 [(2)]:

2.4.2.1 For a tanker carrying crude oil, there is an approved VOC Management Plan -
2.4.2.2 VOC Management Plan approval reference: **-** -

2.5 Shipboard Incineration (Regulation 16)

The ship has an incinerator:

2.5.1 installed on or after 1 January 2000 which complies with:

2.5.1.1 resolution MEPC.76(40), as amended[34] ☒

2.5.1.2 resolution MEPC.244(66) ☒

2.5.2 installed before 1 January 2000 which

2.5.2.1 complies with resolution MEPC.59(33), as amended[6] -
2.5.2.2 complies with resolution MEPC.76(40), as amended[5] -
2.5.2.3 does not comply with resolution MEPC.59(33) or resolution MEPC.76(40) -

2.6 Equivalents (Regulation 4)

The ship has been allowed to use the following fitting, material, appliance or apparatus to be fitted in a ship or other procedures, alternative fuel oils, or compliance methods used as an alternative to that required by this Annex:

System or equipment	Equivalent used	Approval reference

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

Issued at **Hamburg, Germany** on **2022-12-27**

[2] Ships with DNV Class notation VCS-1 or VCS-2 (compliance with USCG CFR 46 Part 39) comply with IMO MSC/Circ.585.

[3] As amended by resolution MEPC.93(45)

[4] As amended by resolution MEPC.92(45)

for **DNV**

This document is signed electronically in accordance with IMO FAL.5/Circ.39/Rev.2. Validation and authentication can be obtained from trust.dnv.com by using the Unique Tracking Number (UTN):

n1825055-udq and ID: 17836

Anica Mosig

SUPPLEMENT TO THE INTERNATIONAL OIL POLLUTION PREVENTION CERTIFICATE (IOPP CERTIFICATE)

Certificate No:
n1802238-pen
DNV Id No:
17836
Date of issue:
2022-10-27

RECORD OF CONSTRUCTION AND EQUIPMENT FOR SHIPS OTHER THAN OIL TANKERS

(FORM A)

in respect of the provisions of Annex I of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (hereinafter referred to as "the Convention").

This form is to be used for the third type of ships as categorized in the IOPP Certificate, i.e. "ships other than any of the above". For oil tankers and ships other than oil tankers with cargo tanks coming under Regulation 2.2 of Annex I of the Convention, Form B shall be used.

This Record shall be permanently attached to the IOPP Certificate. The IOPP Certificate shall be available on board the ship at all times.

Entries in boxes shall be made by inserting either a cross (x) for the answers "yes" and "applicable" or a dash (-) for the answers "no" and "not applicable" as appropriate.

Regulations mentioned in this Record refer to Regulations of Annex I of the Convention and resolutions refer to those adopted by the International Maritime Organization.

1. Particulars of Ship

1.1	Name of ship		**PETROBRAS 26**
1.2	Distinctive number or letters	**HP-8997**	
	IMO number		**8764169**
1.3	Port of registry		**PANAMA**
1.4	Gross tonnage		**20313**
1.5	Date of build:		
1.5.1	Date of building contract:		**-**
1.5.2	Date on which keel was laid or ship was at a similar stage of construction:		**1984-01-01**
1.5.3	Date of delivery:		**1997-10-01**
1.6	Major conversion (if applicable):		
1.6.1	Date of conversion contract:		**-**
1.6.2	Date on which conversion was commenced:	**-**	
1.6.3	Date of completion of conversion:	**-**	

1.7 The ship has been accepted by the administration as a “ship delivered on or before 31 December 1979” under Regulation 1.28.1 due to unforeseen delay in delivery .....

2. Equipment for the control of oil discharge from machinery space bilges and oil fuel tanks

(Regulations 16 and 14)

2.1 Carriage of ballast water in oil fuel tanks

2.1.1 The ship may under normal conditions carry ballast water in oil tanks .....

Form code: IOPP 501 Revision: 2022-09 www.dnv.com Page 10 of 4

2.2 Type of oil filtering equipment fitted:

2.2.1 Oil filtering (15 ppm) equipment (Regulation 14.6) ..... ☐

2.2.2 Oil filtering (15 ppm) equipment with alarm and automatic stopping device (Regulation 14.7) ..... ☐

2.3 Approval standards

2.3.1 The separating / filtering equipment:

.1 has been approved in accordance with Resolution A.393(X) [5] ..... ☐

.2 has been approved in accordance with Resolution MEPC.60(33) [1] ..... ☐

.3 has been approved in accordance with Resolution MEPC.107(49) [6] ..... ☐

.4 has been approved in accordance with Resolution A.233(VII) ..... ☐

.5 has been approved in accordance with National Standards not based upon Resolution A.393(X) or A.233(VII) ..... ☐

.6 has not been approved ..... ☐

2.3.2 The process unit has been approved in accordance with Resolution A.444(XI) ..... ☐

2.3.3 The oil content meter:

.1 has been approved in accordance with Resolution A.393(X) [1] ..... ☐

.2 has been approved in accordance with Resolution MEPC.60(33) [1] ..... ☐

.3 has been approved in accordance with Resolution MEPC.107(49) [2] ..... ☐

2.4 Maximum throughput of the system is **m^3/h**

2.5 Waiver of Regulation 14:

2.5.1 The requirement of Regulation 14.1 or 14.2 are waived in respect of the ship in accordance with Regulation 14.5. ..... ☒

2.5.1.1 The ship is engaged exclusively on voyages within special area(s): ☐

.....

2.5.1.2 The ship is certified under the International Code of Safety for High-Speed Craft and engaged on a ☐ scheduled service with a turn-around time not exceeding 24 hours .....

2.5.2 The ship is fitted with holding tank(s) for the total retention on board of all oily bilge water as follows:

Tank Identification (This table is used only in connection with waivers in accordance with Regulation 14.5)	Tank Location		Volume (m^3)
	Frames (from-to)	Lateral Position (P-C-S)	
Waste Tank (T-533101 A)	**Pump room**	**S**	**1.50**
Waste Tank (T-533101 B)	**Pump room**	**P**	**1.50**
Total volume			**3.00**

2A Bunker tank protection, (entry into force 1 August 2007) (Regulation 12 A)

2A.1 The ship is required to be constructed according to Regulation 12A and complies with the requirements of:

[5] Equipment installed on ships keel laid on or after 30 April 1994 should be in accordance with Resolution MEPC.60(33).

[6] Equipment installed on ships keel laid on or after 1st January 2005 or new installations fitted onboard ships on or after 1st January 2005 should be according to Resolution MEPC.107(49).

.1 paragraphs 6 and either 7 or 8 (double hull construction) ..... ☐

.2 paragraph 11 (accidental oil fuel outflow performance) ..... ☐

2A.2 The ship is not required to comply with the requirements of Regulation 12A ..... ☒

3. Means for retention and disposal of oil residues (sludge) and oily bilge water holding tank(s) [3] (Regulation 12)

3.1 The ship is provided with oil residue (sludge) tanks for retention of oil residues (sludge) on board as follows:

Tank Identification	Tank Location		Volume (m^3)
	Frames (from-to)	Lateral Position (P-C-S)	
V-533602 (Slop Container)	**133**	**Spider Deck**	**20.00**
TD-533601 (Production Caisson)	**133**	**Spider Deck**	**10.00**
Total volume			**30.00**

3.2 Means for the disposal of oil residues (sludge) retained in oil residue (sludge) tanks:

3.2.1 Incinerator for oil residues (sludge) ..... ☐

3.2.2 Auxiliary boiler suitable for burning oil residues (sludge) ..... ☐

3.2.3 Other acceptable means, state which: **Transfer to production stream** ☒

3.3 The ship is provided with holding tank(s) for the retention on board of oily bilge water as follows:

Tank Identification	Tank Location		Volume (m^3)
	Frames (from-to)	Lateral Position (P-C-S)	
Total volume			

4. Standard discharge connection (Regulation 13)

4.1 The ship is provided with a pipeline for the discharge of residues from machinery bilges and sludges to reception facilities, fitted with a standard discharge connection in accordance with Regulation 13 ..... ☒

[-]

5. Shipboard oil/marine pollution emergency plan (SOPEP / SMPEP)
(Regulation 37)

5.1 The ship is provided with Shipboard Oil Pollution Emergency Plan in compliance with Regulation 37 ..... [X]

5.2 The ship is provided with a Shipboard Marine Pollution Emergency Plan in compliance with Regulation 37.3 ..... [-]

6. Exemption

6.1 Exemptions have been granted by the Administration from the requirements of Chapter 3 of Annex I of the Convention in accordance with Regulation 3.1 on those items listed under paragraph(s) **2.2** of this Record [X]

7. Equivalents (Regulation 5)

7.1 Equivalents have been approved by the Administration for certain requirements of Annex I [-] listed under paragraph(s) of this Record .....

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[3] Oily bilge water holding tank(s) are not required by the Convention, if such tank(s) are provided they shall be listed in table under paragraph 3.3

8. Compliance with part II-A - chapter 1 of the Polar Code

8.1 This ship is in compliance with additional requirements in the environment-related provisions of the Introduction and section 1.2 of chapter 1 of part II-A of the Polar Code .....

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

Issued at **Offshore Campos Basin, , Brazil** on **2022-10-27**
for **DNV**

This document is signed electronically in accordance with IMO FAL.5/Circ.39/Rev.2. Validation and authentication can be obtained from trust.dnv.com by using the Unique Tracking Number (UTN):
n1802238-pen and ID: 17836

Reinaldo Kiomi Kuriyama
Surveyor

Remark ref. item 2.2, 2.5 and 6.1: This unit is exempted from having oil filtering equipment in accordance with Reg. 14 as per exemption certificate No. 12755 dated 2007-12-19 from Panama Maritime Authority. All oily water derived from machinery spaces will be fully transferred to production stream.

CLASS STATUS REPORT

CURRENT STATUS

PETROBRAS 26

PETROBRAS NETHERLANDS B.V.

Report date: **2023-02-23**
IMO number: **8764169**
DNV number: **17836**

VESSEL INFORMATION

DNV id. no.	**17836**	Operational status	**In operation**
IMO no.	**8764169**		

Name of vessel
PETROBRAS 26
IMO 8764169

DNV ID no.
17836

Vessel name	**PETROBRAS 26**	Signal letters	**HP-8997**
Type	**676 - Column-stabilised unit**	Port of registration	**PANAMA**
Date of keel laid	**1984-01**	Flag	**Panama**
Date of build	**1997-10**		
Date of commissioning		Equipment letter	
Gross tonnage (ITC 69)	**20313**	Gross tonnage (pre 69)	**0**
Previous name(s)	**Iliad (1997),**		
Class notation	**✠1A1 Column-stabilised Offshore support unit**		
Other classification society			

OWNER / MANAGER / DOC HOLDER INFORMATION

Owner	**Petrobras Netherlands B.V.**	Owner no.	**130442**
Manager	**PETROLEO BRASILEIRO S.A. PETROBRAS**	Manager no.	**1203482**
Address	**8-Ativo de Produção Marlim (ATP-MRL)/P-3**		
City/ZIP - Country **Brazil**			
DOC Holder		DOC Holder no.	

VESSEL CERTIFICATES

Class certificates

Certificate description	Code	Issued	Location		
Classification compliance document	CLCE	2023-01-27	Station Rio de Janeiro, MOU	2023-03-31	Interim

Statutory certificates

- issued by DNV on behalf of other party

Certificate description	Code	Issued	Location	Valid until	Type	Status
Load line compliance document	ILLC	2022-10-27	Station Rio de Janeiro, MOU	2027-10-31	Full term	
Mobile offshore drilling unit safety compliance document	MODU	2023-01-27	Station Rio de Janeiro, MOU	2023-03-31	Short term	
Oil pollution prevention compliance - vessels other that oil tankers	OPP-A document	2022-10-27	Station Rio de Janeiro, MOU	2027-10-31	Full term	
Sewage pollution prevention compliance document	SPP	2022-10-27	Station Rio de Janeiro, MOU	2027-10-31	Full term	
Air pollution prevention compliance	IAPP document	2022-12-27	Class Systematics, Data and Operation Centre	2027-10-31	Full term	
Tonnage measurement compliance	TMC document	2021-09-16	Station Rio de Janeiro, MOU		Full term	

Valid until	Type	Status

VESSEL SURVEYS

Class surveys

Survey description	Code	Last survey	Location	Next survey [from, to]	Status
Main class renewal	MC.R	2022-10-27	Station Rio de Janeiro, MOU	2027-07-31, 2027-10-31	
Main class intermediate	MC.In	2021-01-29	Station Rio de Janeiro, MOU	2024-07-31, 2026-01-31	
Main class annual	MC.A	2022-10-27	Station Rio de Janeiro, MOU	2023-07-31, 2024-01-31	
Tanks and spaces annual	TS.Sa	2022-10-27	Station Rio de Janeiro, MOU		
Hull items	HS.Sa	2022-10-27	Station Rio de Janeiro, MOU		
Machinery items	MS.Sa	2022-10-27	Station Rio de Janeiro, MOU	2023-07-31, 2024-01-31	
Bottom complete survey (Last: In Water)	BOT.C	2022-10-27	Station Rio de Janeiro, MOU	2025-10-27	

Statutory surveys

Survey description	Code	Last survey	Location	Next survey [from, to]	Status
Load line renewal	ILLC.R	2022-10-27	Station Rio de Janeiro, MOU	2027-07-31, 2027-10-31	
Load line annual	ILLC.A	2022-10-27	Station Rio de Janeiro, MOU	2023-07-31, 2024-01-31	
MODU Code radio annual survey	MODUCRC.A	2022-10-27	Station Rio de Janeiro, MOU	2023-07-31, 2024-01-31	
MODU Code renewal survey	MODU.R	2022-10-27	Station Rio de Janeiro, MOU	2027-07-31, 2027-10-31	
MODU Code intermediate survey	MODU.In	2021-01-29	Station Rio de Janeiro, MOU	2024-07-31, 2026-01-31	
MODU Code annual survey	MODU.A	2022-10-27	Station Rio de Janeiro, MOU	2023-07-31, 2024-01-31	
Oil pollution prevention, type A renewal	OPP-A.R	2022-10-27	Station Rio de Janeiro, MOU	2027-07-31, 2027-10-31	
Oil pollution prevention, type A intermediate	OPP-A.In	2021-01-29	Station Rio de Janeiro, MOU	2024-07-31, 2026-01-31	
Oil pollution prevention, type A annual	OPP-A.A	2022-10-27	Station Rio de Janeiro, MOU	2023-07-31, 2024-01-31	
Sewage pollution prevention renewal survey	SPP.R	2022-10-27	Station Rio de Janeiro, MOU	2027-07-31, 2027-10-31	
Air pollution prevention renewal	IAPP.R	2022-10-27	Station Rio de Janeiro, MOU	2027-07-31, 2027-10-31	

IMPORTANT
The vessel's class will be automatically suspended if Annual, Intermediate or Renewal surveys are not carried out within the end of their respective range dates.

RELEVANT INTERNATIONAL CONVENTION CERTIFICATES NOT LISTED ARE ASSUMED ISSUED BY THE FLAG ADMINISTRATION.

Survey description	Code	Last survey	Location	Next survey [from, to]	Status
Air pollution prevention intermediate	IAPP.In	2021-01-29	Station Rio de Janeiro, MOU	2024-07-31, 2026-01-31	
Air pollution prevention annual	IAPP.A	2022-10-27	Station Rio de Janeiro, MOU	2023-07-31, 2024-01-31	

CONDITIONS

Conditions related to class

No.	Issued date	Issued at	Due date	Postponed	Status
CC 389	2021-04-25	Station Rio de Janeiro, MOU	2022-01-31	2023-03-31	Due
	Excessive corroded bottom plating on voids CL3-1A, CL6-3A and CL4-1A and main deck plating on top of column 5 (AFT/PS) "E" plate shall be dealt with before due date.				
CC 392	2021-09-16	Station Rio de Janeiro, MOU	2021-12-15	2023-06-30	Due
	Remote sensors draft AFT/STB and FWD/PS not in order to be repaired.				
CC 397	2021-11-23	Station Rio de Janeiro, MOU	2022-10-31	2023-04-30	Due
	Corroded and holed areas inside Blister 4-4 (port center column upper blister) shall be dealt with before due date.				
CC 402	2022-06-25	Station Rio de Janeiro, MOU	2022-10-31	2023-06-30	Due
	COLUMN MS SB (SC2) - Corroded/wasted area inside void space CL-2B located close to the connection between horizontal brace H2 and column SC2 to be repaired.				
CC 404	2022-10-03	Station Rio de Janeiro, MOU	2022-11-30	2023-03-31	Due
	FIRE WATER SYSTEM UB-542001B with Leakages on piping due to corrosion to be repaired.				
CC 406	2022-10-03	Station Rio de Janeiro, MOU	2022-10-31	2023-04-30	Due
	VOID SPACE 4P (BT-4 Blister) - Shell plating found holed due to corrosion to be repaired as follow. 1- Inner shell plating holed due to excessive corrosion close to the connection between inner shell and forward shell. 2- Forward shell plating holed due to excessive corrosion close to the connection between outer shell and forward shell. 3- Outer shell plating holed due to excessive corrosion located between 2nd and 3rd stiffener from AFT shell to FWD shell and El.24275.				
CC 408	2022-10-27	Station Rio de Janeiro, MOU	2023-01-31	2023-03-31	Due
	Missing sea chest internal examination, Hull cathodic potential readings and completion of Hull General visual inspection to be carried out.				
CC 409	2022-10-27	Station Rio de Janeiro, MOU	2023-01-31	2023-03-31	Due
	Non-destructive examination ACFM on special connections and Close-up inspection (bracings, columns and pontoons) to be completed and reports to be presented to DNV.				
CC 412	2022-10-27	Station Rio de Janeiro, MOU	2023-01-31	2023-03-31	Due
	NPS open comment 763 to be dealt with. The anticipated loading condition for the lightweight survey to be included in the procedure in order to verify the draft, GM, slack tanks.				

No.	Issued date	Issued at	Due date	Postponed	Status
CC 413	2022-10-27	Station Rio de Janeiro, MOU	2023-01-31	2023-03-31	Due
	NPS open comment 775 to be dealt with. Procedure to change operation draught to survival draught with VDL removal to be submitted.				
CC 415	2022-10-27	Station Rio de Janeiro, MOU	2023-01-31	2023-03-31	Due
	Light ship displacement verification by comparison of the calculated and observed draught shall be carried out before due date.				
CC 416	2022-10-27	Station Rio de Janeiro, MOU	2023-01-31	2023-03-31	Due
	Documentation (lightweight variation, updated fire control plan, Air compressor P&ID and Cause Effect Matrix) of temporary diesel air compressors installed on upper deck Port (ref MO254) to be submitted.				
CC 417	2022-10-27	Station Rio de Janeiro, MOU	2023-01-31	2023-03-31	Due
	FWD lifeboat deck structure lower beam flange corroded to be thickness gauged and excessive corroded brackets shall be repaired.				

Conditions related to statutory certificates

No.	Issued date	Issued at	Due date	Postponed	Status
CA 713	2022-10-03	Station Rio de Janeiro, MOU	2022-10-31	2023-03-31	Due
	FRB – Bearing of brake system with clearance, maintenance cable with certification overdue and portable fire extinguisher with actuation device damaged to be repaired or provided or inspected by NDT. NOTES: 1– Despite bearing of brake system with clearance, the equipment has been examined and tested and it is ready to be used if necessary. 2– Maintenance cable with certification overdue has been visually examined and no obvious damage or suspected condition has been found.				
CA 718	2022-10-27	Station Rio de Janeiro, MOU	2023-01-31	2023-03-31	Due
	CO2 fixed firefighting system missing blow discharge pipes and five yearly internal examination of control valves to be carried out.				
CA 721	2023-01-27	Station Rio de Janeiro, MOU	2023-03-31		Due
	LIFERAFT DAVIT #SB found damaged on welding connection to Main deck to be repaired. Note 1: Due to condition of davit connection to main deck the 5 yearly load test has not been performed. Note 2: The liferaft davit is out of operation, however the liferafts may be manually launched if required.				
CA 722	2023-01-27	Station Rio de Janeiro, MOU	2023-03-31		Due
	LIFEBOATS found with limit switch not in order to be repaired or replaced as follows. 1– Lifeboat #2 with fwd and aft limit switches not in order. 2– Lifeboat #3 with fwd and aft limit switches not in order. 3– Lifeboat #4 with fwd limit switches not in order.				

No.	**Issued date**	**Issued at**	**Due date**	**Postponed**	**Status**
CA 723	2023-01-27	Station Rio de Janeiro, MOU	2023-03-31		Due
	Navigation U Code lighting found not in order (FWD PS / FWD SB / AFT PS / AFT SB) to be repaired or replaced				
CA 724	2023-01-27	Station Rio de Janeiro, MOU	2023-03-31		Due
	LIFERAFT DAVIT #PS found damaged on welding connection to Main deck, with main pulley (catarina) damaged and gear box with suspected excessive corrosion to be repaired. Note 1: Due to condition of davit connection to main deck the 5 yearly load test has not been performed. Note 2: The liferaft davit is out of operation, however the liferafts may be manually launched if required.				

RECORDINGS

Test name	**Test date**
Sea and sanitary valves examination date	2018-05-11

MEMORANDA FOR OWNERS

Memoranda related to class certificate

No.	Issued date	Issued at
MO 133	2006-02-01	Region South America

Reference to metallography analysis report – Tecmetal RT 567/2005 dated 2005-11-11. Austenitic stainless steel has been found on welds and heat affected zones at the following special areas: –
PVD1/TG1
– SVF/LGS1
– PVF/LGP1

These special areas are to be tested by liquid penetrant method when required by the IIP.

MO 136	2007-12-04	Rio - Offshore in Service

Hazardous gas areas arrangement – gastight doors This is to inform that the gastight doors P 59 and P 58 between battery rooms and alleyway are opening to the direction of the most hazardous location. This arrangement has been accepted considering that if the concerned doors opens to the less hazardous area (alleyway) it will block an escape route.

MO 139	2008-11-12	Rio - Offshore in Service

Following damper control panels located in air locks have been pressurized upon surveyor's discretion: – Panel 5200209
– Panel 5200215
– Panel 5200210 Alarm for pressure drop will be installed in all three panels as per owner information.

MO 148	2010-12-04	Rio - Offshore in Service

It was found bended fire water deluge system pipe on top of TO122301B. The system was tested satisfactorilly and no major damage was detected on the bended pipe.

MO 203	2017-09-07	Station Rio de Janeiro, MOU

As this unit is permanently located in Brazil, an International Ballast Water Management Certificate is not required. Before relocation, the owner shall agree with the shelf authority with respect to the requirements of the International Ballast Water Convention.

MO 213	2018-01-19	Station Rio de Janeiro, MOU

As per letter NACNO723/GJE/17836-J-0356, following connections are exempted of external NDE at renewal surveys. Structural integrity manager (SIM) has been updated in order to reflect such exemptions:
PVD12/PC1
SVD12/SC1
PVD23/PC3
SVD23/SC3

MO 216 2018-03-07 Hamburg - Statutory / Technical Support

Ballast water management (BWM) convention is not applicable: With reference to the MO 203 issued to the ship, it is deemed to be in national voyage only, and therefore the BWM convention is not applicable to this vessel according to Article 3, par.2 (c). A respective statement issued by Flag Administration or the Shelf State shall be kept on board readily available by the master for e.g. port state control purposes. It will become invalid in case of any change of the vessels's operational area. It must be renewed in case of change of flag or change of owner. In case of change of class the new classification society must be notified.

MO 225 2019-06-24 Station Rio de Janeiro, MOU

In connection with previous MOs 188, 196 and 198, this MO has been issued to monitor cracks found on connections between braces and columns. Cracks have been recorded in underwater and internal inspection reports below (only those where some problem has been found) and the monitoring will be carried out at every bottom survey.

Based on approval letter M-AS-RNB/PONZ/17836-J-3432 dated 2019-02-22 indications on H1, H2 and H3 connections to columns are accepted as it is and should be continuously monitored.

SISTAC MER/ACFM/0514-1/00, MER/ACFM/0610-1/00 (ACFM) 2000
MARÍTIMA RL-3010.29-1320-973-SME-003 (ACFM and MPI) 2007
SISTAC RL-3010.29-1323-970-AKK-003 (RIACFM #01, #02, #03, #04, #05) (ACFM) 2009
OCEANICA PO-MRS-008 (MPI) 2009
OCEANICA PO-MRS-007 (MPI) 2010
BRASITEST LAL-US-212/10 (UT) 2010
BRASITEST LAL-US-020/11 (UT) 2011
FUGRO 3010.29-1320-973-PEH-001 (MPI) 2012
FUGRO 3010.29-1320-973-PEH-004 (MPI) 2013 SISTAC RL-3010.29-1320-973-AKK-011 (RIPM #01, RIACFM #18, #25, #26, #29, #30, #31 and #32) (MPI and ACFM) 2013
DMCJ P-26-003/15 (UT) 2015
SISTAC RL-3010.29-1320-973-AKK-031 (RIPM #01, #02, #03, #04, #05, #06 and #07) (MPI) 2016
SISTAC RL-3010.29-1320-973-AKK-043 (RIPM #01)

Cracks being followed up:

H1L x SPT (just for information it is not considered any problem)
Clock position 0h - previous length: 87mm/ last: not recorded/found (SISTAC - RIPM #06 - 29 May 2016)

H1 x PC1 Clock position 3h - length: 272mm / last: 275mm (SISTAC - RIPM #02 -
03 April 2016) Clock position 3h - length: 172mm / last: 175mm (SISTAC - RIPM #02 -
03 April 2016) Clock position 9h - length: 205 mm / last: 207mm (SISTAC - RIPM #02 -
03 April 2016) Clock position 9h - length: 278 mm / last: 278mm (SISTAC - RIPM #02 -
03 April 2016)

H1 x SC1

Clock position 6h – previous length: 140mm / last: 110mm (SISTAC – RIPM #05 – 29 May 2016)
Clock position 6h – previous length: 30mm / last: 40mm (SISTAC – RIPM #05 – 29 May 2016)
Clock position 6h – previous length: 285mm / last: 352mm (SISTAC – RIPM #05 – 29 May 2016)
Clock positions between 3h and 6h brackets – previous length: 200mm (ACFM) / last: 71mm (MPI) (SISTAC – RIPM #05 – 29 May 2016)
Clock positions between 6h and 9h brackets – previous length: 250mm (ACFM) / last: 52mm (MPI) (SISTAC – RIPM #05 – 29 May 2016)
Clock positions between 3h and 6h brackets – previous length: 71 mm (MPI) / last: 110mm and 16mm (MPI) after grinding (SISTAC – RIPM #01 – 06 March 2018)
Clock positions between 6h and 9h brackets – previous length: 52mm (MPI) / last: 71mm (MPI) after grinding (SISTAC – RIPM #01 – 06 March 2018)

H2 x PC2
Clock position 0h – length: 35mm (ACFM) / last: 186mm (MPI) (SISTAC – RIPM #01 – 01 April 2016)
Clock position 3h – length: 72mm (ACFM) / last: 221mm (MPI) (SISTAC – RIPM #01 – 01 April 2016)
Clock position 6h – length: 150mm (ACFM) / last: 172mm (MPI) (SISTAC – RIPM #01 – 01 April 2016)
Clock position 9h – length: 81mm (ACFM) / last: 263mm (MPI) (SISTAC – RIPM #01 – 01 April 2016)

H2 x SC2
Clock position 3h – length: 170mm / last: 173mm (SISTAC – RIPM #03 – 03 April 2016)
Clock position 3h – length: 25mm (UT) (BRASITEST 2010 and DMCJ 2015) (internal welding defect – just for information it is not considered any problem) Clock positions between 6h and 9h brackets – length: cracks not reported (SISTAC – RIPM #03 – 03 April 2016) (just for information it is not considered any problem)

H3 x PC3 Clock position 3h – previous length: 83mm / last: 164mm (SISTAC –
RIPM #07 – 1 June 2016) Clock position 3h previous length: 100mm / last: 83mm (SISTAC –
RIPM #07 – 1 June 2016) Clock position 3h – no previous indication / last: 79mm (SISTAC –
RIPM #07 – 1 June 2016) Clock position 6h – previous length: 160mm / no indication recorded/found (SISTAC – RIPM #07 – 1 June 2016) (just for information it is not considered any problem) Clock position 9h – previous length 60mm / last: 64mm (SISTAC – RIPM
#07 – 1 June 2016)

H3 x SC3
Clock position 3h – previous MPI: 152mm / last MPI: 192mm. (SISTAC RIPM #04 22 May 2016)

MO 235 2020-04-22 Station Rio de Janeiro, MOU

Mooring lines informations:

In connection with former MO 126:
Mooring Chain Accessories #1, 2, 3, 4 & 9 mooring lines – 76 mm nominal diameter grade R4 accessories certified proof load PL = 4206 kN / breaking load BL = 6002 kN.

Maximum design load is 4117 kN according to approved Mooring Analysis – Kvaerner Report No. 4 730 392-101-905.

In connection with former MO 153: According to Owner information, the polyester rope of mooring line #9 has came in contact with sea bed. This same incident has occurred before with polyester rope of mooring line #5, which has been replaced. Owner is performing further studies on the polyester rope of mooring line #5, to evaluate the criticality of such events. DNV has agreed that, once these studies are completed, the results will be applied to determine whether polyester rope of mooring line #9 shall be replaced or not.

In connection with former MO 156: Regarding mooring lines, kindly note following aspects applicable to this unit, considering she is a permanently moored oil production unit: – Anchor lines service record is not kept onboard since owner has a special department in charge of all operations connected to mooring lines (US-SUB/ANC) which is based in Macaé at Santa Monica building where all information is available; and – An alternative method for mooring lines inspection at Renewal Surveys was implemented as per DNV Rules and owner s procedures.

In connection with Survey Statement 1338525 dated 2019-08-26: Mooring line #8 has been partially replaced due to broken line on fairlead as follows (from top): – Top chain DN 76mm x R4 x 200m; – Joining shackle DN 76mm x R4; and – Connection chain DN 76mm x R4 x 34m.

In conection with former MO 228: Mooring line #5 was partially renewed broken top chain in way of fairlead. Added components were identified and are traced as below. Top chain DN 76mm R4 studded, certificate number N1402DB6, Petrobras tag C36115; and Joining shackle DN 76mm R4 "H", certificate number NX2853932-L, Petrobras tag M131215.

MO 239 2020-11-25 Statutory Support, Høvik

Administrative surcharge Panama: A surcharge fee per statutory certificate issued or endorsed, or approval job carried out will be invoiced by DNV to the vessel's manager on behalf of Panama Flag Administration.

MO 241 2021-01-29 Station Rio de Janeiro, MOU

Following equipment is considered decommisioned upon owner's option:
– Turbine generator A (FS) and its associated equipment;
– Water injection pumps; and– All turbine compressors (A, B and C).

MO 242 2021-01-29 Station Rio de Janeiro, MOU

The following life-saving appliance items were confirmed:

1) Last 5 yearly davits inspection and dynamic test carried out on winches and brakes with 1.1 maximum working load:
a) Rescue boat: 01/2018;
b) Lifeboat #1: 07/2019;
c) Lifeboat #2: 07/2019;
d) Lifeboat #3: 07/2019;
e) Lifeboat #4: 09/2020;
f) Life-raft STB station: 01/2018; and

g) Life-raft PS station: 01/2018.

2) Last 5 yearly operational on-load release gear test under 1.1 total mass of boat, equipment and persons:
a) Lifeboat #1: 07/2019;
b) Lifeboat #2: 07/2019;
c) Lifeboat #3: 07/2019; and
d) Lifeboat #4: 07/2019.

3) Last 5 yearly lifeboats self-contained air support system cylinders hydrostatic test:
a) Lifeboat #1: 12/2018;
b) Lifeboat #2: 06/2018;
c) Lifeboat #3: 10/2019; and
d) Lifeboat #4: 01/2018.

4) Last launching appliances falls (steel cables) replacement:
a) Lifeboat #1: 04/2019;
b) Lifeboat #2: 06/2019;
c) Lifeboat #3: 10/2016;
d) Lifeboat #4: 11/2019;
e) Rescue boat: 04/2019;
f) Life-raft STB station: 03/2017; and
g) Life-raft PS station: 01/2018.5) Line throwing appliances set validity: 2023/12

MO 243 2021-04-25 Station Rio de Janeiro, MOU

Annual survey of tanks and spaces due to POOR coating / no coating / soft coating: The survey 'Tanks and spaces annual' applies to this vessel. The survey includes internal overall examination. For areas with general breakdown of the protective coating, close-up examination and thickness measurement shall be carried out to an extent sufficient to determine both general and local corrosion levels. For areas found with substantial corrosion extended thickness measurements shall be carried out before the survey is credited as completed. The following tanks are affected by this Memo:
- Void column tank 2P(CL-2A)(016.5-025) periodical.

MO 245 2021-08-18 Station Rio de Janeiro, MOU

According to Petrobras report #RL-3010.29-1320-750-PSE-001 Rev.0 (15-01-2016) refers document RL-3010.29-1320-973-AKK-019 (UWILD Survey done by SISTAC between 16/05/2015 until 05/08/2015) states low potential measurements at fairleads, but hull cathodic protection and accessories are adequate. Based on the last bottom survey reference to service report no.
PPmrl21-080 issued by OCEÂNICA ENGENHARIA E CONSULTORIA LTDA dated on 02.05.2021 and Measurement of Electrochemical Potential Inspection Report no. RL-3010.29-1320-973-AKK-057 issued by SISTAC - Sistemas de Acesso S.A. dated on 23.07.2021 some values have been found below recommended. As stated by owner representatives the ICCP-anode current output would be increased, then, potentials (mV ER Ag/AgCl) to be verified on next UWILD survey as follows.
Measurements on 08.2015:

1. Fearlead #1: -743 to -801
2. Feralead #2: -680 to -682
3. Fearlead #3: -541 to -628
4. Fearlead #4: -665 to -713

5. Fearlead #5: -690 to -692
6. Fearlead #6: -680 to -683
7. Fearlead #7: -724 to -810
8. Fearlead #8: -718 to -801

Measurements on 08.2021:

9. Fearlead #9: -645 a -642
10. Fearlead #10: -645 a -626
11. Fearlead #11: -658 a -654
12. Fearlead #12: -653 a -608
13. Fearlead #13: -687 a -637
14. Fearlead #14: -682 a -618
15. Fearlead #15: -730 a -687
16. Fearlead #16: -735 a -638

Measurements on 08.2021:

1. FWD Pontoon bottom: -0.754
2. Mid SB Pontoon bottom: -0.769
3. AFT Pontoon bottom: -0.598
4. AFT Pontoon deck: -0.791
5. Diagonal brace (PVA): -0.787
6. Column PC3: -0.796
7. Diagonal brace (PVD23): -0.738

MO 246 2021-09-11 Station Rio de Janeiro, MOU

The DNV Rig Coordinator for the unit:
Thalles Santos Station
Rio de Janeiro, MOU
Email: Thalles.Santos@dnv.com
Phone: +55 21 3722 7246

DNV, Offshore Fleet in Service: For technical issues, please register a DATE case in My DNV (Veracity.com). or E-mail: ouio@dnv.com

MO 249 2021-09-16 Station Rio de Janeiro, MOU

Two newly installed "AGGREKO" diesel generators set on upper deck PS and SB documentation has been approved as per DNVGL letter M-AS-RNB/DANISA/ P18821-J-11187). Once these temporally generator are removed from board, this MO to be deleted.

MO 250 2021-12-07 Station Rio de Janeiro, MOU

CATHODIC PROTECTION - Following mooring lines have been found with electrochemical potential average below protection rate (-880mV) between water line and 30m depth. Reference made to the inspection reports "INSPEÇÃO DE LINHAS DE ANCORAGEM INSP. RASO" - Nos. SFmrl21-146/145/144/123/125/126/147/148 dated between days 24.11.2021 and 07.12.2021, and to the inspection reports "INSPEÇÃO DE LINHAS DE ANCORAGEM INSP. RASO" - Nos. AAmrl21-015/16 dated on 08.12.2021.
Mooring line #1
Mooring line #2
Mooring line #3
Mooring line #4
Mooring line #5

No.	Issued date	Issued at

Mooring line #6
Mooring line #10
Mooring line #11
Mooring line #13
Mooring line #14
Mooring line #15
Mooring line #16

MO 253 2022-04-20 Offshore Class Operations Centre

External inspection of the lower brace/column and pontoon connections have been accepted replaced by internal visual inspections every 6. Month. Internal areas subject for inspection, shall be painted in light grey color for increased inspection result confidence.

MO 254 2022-06-25 Station Rio de Janeiro, MOU

TEMPORARY AIR COMPRESSOR ARRANGEMENT

A temporary air compressor arrangement has been verified based on the documentation submitted and accepted as it is until 2022.10.31. DNV doc reference is M-AS-RNB/DANFER/17836-J-3495 and Petrobras reference is FIC6925. One compressor is located at FWD PS and other MS SB.

Compressor details
Type: XATS91OMWD
S/N: BQD116143 / BQD123019
MAN: ATLAS COPCO

This memo to owner shall be updated upon any modification on this arrangement or deleted upon reinstatement of original arrangement or deleted on 2022.10.31.

Memoranda related to statutory certificates

No.	Issued date	Issued at

MO 234 2020-02-06 Station Rio de Janeiro, MOU

OFFSHORE CRANES 1.

Last Load test:

a) PS Offshore Crane, Jan/2020:Main Hoist:
Radius of test_____: 28,5 m ; 36,0 m ; 44,2 m
Test Loads_____: 35,25 t ; 29,49 t ; 17,65 t
Safe working load__: 30,25 t ; 24,49 t ; 14,12 t
Auxiliary hoist:
Radius of test_____: 44,2 m
Test Loads_____: 7,09 t
Safe working load__: 5,67 t
b) SB Offshore Crane, Nov/2018

Main Hoist:
Radius of test_____: 28,5 m ; 36,0 m ; 44,2 m
Test Loads_____: 35,25 t ; 29,49 t ; 17,65 t
Safe working load__: 30,25 t ; 24,49 t ; 14,12 t

MO 236 2020-09-29 Station Rio de Janeiro, MOU

In connection with Inventory of Hazardous Materials (IHM) required by Article 5(2) (existing ships) of the EU SRR 1257/2013, which entered into force on 2013-12-30, vessels that are equal to and above 500 GT flying the flag of an EU/EEA member state must carry a verified IHM report with IHM Certificate, and third party ships that are visiting EU/EEA ports or anchorages must carry a Statement of Compliance for EU Ship Recycling Regulation not later than 2020-12-31. IHM shall be maintained and kept up-to-date during the operational life of the ship according to the EU SRR scheme and is subject to renewal surveys.

Since the unit does not have an EU/EEA flag and is not intended to go any EU/EEA port, IHM SoC/Certificate is not applicable. If any of such conditions changes in the future DNVGL is to be informed and IHM Certificate/SoC will be applicable.

MO 255 2022-10-27 Station Rio de Janeiro, MOU

Port side offshore crane TAG-GD-526001-A-GD-BB is out of operation due to maintenance period. Before starting operation maintenance report and break winch repair report to be presented to DNV. Once this crane returns to operations this MO to be deleted.

SURVEYS OF MACHINERY ITEMS

Code	Description	Last survey	Next survey	Status
Electric power (500)				
MEPTST	Main generator gas turbine arrangement AS > Turbine, multiple shafts	2019-10-06	2025-01-31	
MEPGGE	Main generator gas turbine arrangement AS > Turbine, multiple shafts > Gas generator	2019-10-06	2025-01-31	
MEPPTU	Main generator gas turbine arrangement AS > Turbine, multiple shafts > Power turbine	2019-10-06	2025-01-31	
MEPFIR	Main generator gas turbine arrangement AS > Fire detection, alarm and extinguishing systems	2021-09-16	2027-01-31	
MEPTST	Main generator gas turbine arrangement P > Turbine, multiple shafts	2019-10-06	2025-01-31	
MEPGGE	Main generator gas turbine arrangement P > Turbine, multiple shafts > Gas generator	2019-10-06	2025-01-31	
MEPPTU	Main generator gas turbine arrangement P > Turbine, multiple shafts > Power turbine	2019-10-06	2025-01-31	
MEPFIR	Main generator gas turbine arrangement P > Fire detection, alarm and extinguishing systems	2019-10-06	2025-01-31	
MEPGEN	Main generator AS	2022-10-27	2027-10-31	
MEPGEN	Main generator P	2022-10-27	2027-10-31	
MEPSWL	Main switchboard (Laundry)	2022-10-27	2027-10-31	
MEPSWL	Main switchboard (Essential Lighting)	2022-10-27	2027-10-31	
MEPSWL	Main switchboard (Service)	2022-10-27	2027-10-31	
MEPSWL	Main switchboard (Galley)	2022-10-27	2027-10-31	
MEPSWL	Main switchboard (Normal Lighting)	2022-10-27	2027-10-31	
MEPSWL	Main switchboard (Production)	2022-10-27	2027-10-31	
MEPSWL	Main distribution switchboards	2022-10-27	2027-10-31	
ELECNV	Main power transformers (Transformer/convertor)	2022-10-27	2027-10-31	
EEPDIE	Emergency generator engine C	2017-09-07	2024-01-31	
EEPDIE	Emergency generator engine P	2017-09-07	2024-01-31	
EEPGEN	Emergency generator C	2022-10-27	2027-10-31	
EEPGEN	Emergency generator P	2022-10-27	2027-10-31	
EEPSWL	Emergency switchboard	2021-09-16	2027-01-31	
EEPSWL	Emergency distribution switchboard	2022-10-27	2027-10-31	
ELECNV	Emergency power transformers (Transformer/convertor)	2022-10-27	2027-10-31	
Machinery- and marine piping systems (600)				
FUOPIP	Fuel oil piping (Diesel Oil)	2020-09-29	2026-01-31	
FUOPUI	Fuel oil pumping unit P(Main Deck) (Diesel Oil, Service)	2020-09-29	2026-01-31	
FUOPUI	Fuel oil pumping unit PI(Pump Room) (Diesel Oil, Transfer)	2020-09-29	2026-01-31	
FUOPUI	Fuel oil pumping unit PO(Pump Room) (Diesel Oil, Transfer)	2020-09-29	2026-01-31	
FUOPUI	Fuel oil pumping unit S(Main Deck) (Diesel Oil, Service)	2020-09-29	2026-01-31	
FUOPUI	Fuel oil pumping unit SI(Pump Room) (Diesel Oil, Transfer)	2020-09-29	2026-01-31	
FUOPUI	Fuel oil pumping unit SO(Pump Room) (Diesel Oil, Transfer)	2020-09-29	2026-01-31	
LUOPIP	Lubricating oil piping AS	2020-09-29	2026-01-31	

Code	Description	Last survey	Next survey	Status
LUOPIP	Lubricating oil piping FP	2020-09-29	2026-01-31	
LUOPIP	Lubricating oil piping FS	2020-09-29	2026-01-31	
LUOPUI	Lubricating oil pumping unit A(SF) (Transfer)	2020-09-29	2026-01-31	
LUOPUI	Lubricating oil pumping unit AS(emerg) (Transfer)	2022-10-27	2027-10-31	

LUOPUI	Lubricating oil pumping unit C(PF) (Transfer)	2020-09-29	2026-01-31
LUOPUI	Lubricating oil pumping unit C(SA) (Transfer)	2020-09-29	2026-01-31
LUOPUI	Lubricating oil pumping unit C(SF) (Transfer)	2020-09-29	2026-01-31
LUOPUI	Lubricating oil pumping unit FP(emerg) (Transfer)	2022-10-27	2027-10-31
LUOPUI	Lubricating oil pumping unit FS (Transfer)	2020-09-29	2026-01-31
LUOPUI	Lubricating oil pumping unit FS(emerg) (Transfer)	2022-10-27	2027-10-31
LUOPUI	Lubricating oil pumping unit I(PF) (Transfer)	2020-09-29	2026-01-31
LUOPUI	Lubricating oil pumping unit I(SA) (Transfer)	2020-09-29	2026-01-31
LUOPUI	Lubricating oil pumping unit O(PF) (Transfer)	2020-09-29	2026-01-31
LUOPUI	Lubricating oil pumping unit O(SA) (Transfer)	2020-09-29	2026-01-31
LUOCOO	Lubricating oil cooler AS (Aux. Turbine, not attached)	2020-09-29	2026-01-31
LUOCOO	Lubricating oil cooler FP (Aux. Turbine, not attached)	2020-09-29	2026-01-31
LUOCOO	Lubricating oil cooler FS (Aux. Turbine, not attached)	2020-09-29	2026-01-31
SWCPIP	Sea water piping	2020-09-29	2026-01-31
SWCPUI	Sea water pumping unit AP(Pump Room) (Service)	2021-09-16	2027-01-31
SWCPUI	Sea water pumping unit AS(Pump Room) (Service)	2020-09-29	2026-01-31
SWCPUI	Sea water pumping unit FP(Pump Room) (Service)	2022-10-27	2027-10-31
SWCPUI	Sea water pumping unit FS(Pump Room) (Service)	2020-09-29	2026-01-31
FWCPIP	Fresh water piping	2020-09-29	2026-01-31
FWCPUI	Fresh water pumping unit AC(Main Deck) (Emergency)	2022-10-27	2027-10-31
FWCPUI	Fresh water pumping unit AC(Main Deck) (Circulation)	2022-10-27	2027-10-31
FWCPUI	Fresh water pumping unit API(Main Deck) (Circulation)	2022-10-27	2027-10-31
FWCPUI	Fresh water pumping unit APO(Main Deck) (Circulation)	2022-10-27	2027-10-31
FWCPUI	Fresh water pumping unit PI (High Temp.)	2020-09-29	2026-01-31
FWCPUI	Fresh water pumping unit PO (High Temp.)	2021-09-16	2027-01-31
FWCPUI	Fresh water pumping unit SI (High Temp.)	2020-09-29	2026-01-31
FWCPUI	Fresh water pumping unit SO (High Temp.)	2021-09-16	2027-01-31
FWCCOO	Fresh water cooler A (Central)	2021-09-16	2027-01-31
FWCCOO	Fresh water cooler F (Central)	2021-09-16	2027-01-31
SAMCUI	Starting air compressor unit, main P	2021-09-16	2027-01-31
SAMCUI	Starting air compressor unit, main S	2021-09-16	2027-01-31
COAPIP	Starting air piping	2021-09-16	2027-01-31
SAMARE	Starting air receiver, main P	2021-09-16	2027-01-31
SAMARE	Starting air receiver, main S	2021-09-22	2027-01-31
COACUI	Control air compressor unit (P serv.) (Instrument)	2021-09-16	2027-01-31
COACUI	Control air compressor unit (S serv.) (Instrument)	2021-12-22	2027-01-31
COAARE	Control air receiver (Service) (Instrument)	2021-09-16	2027-01-31
COADRY	Control air dryers (Instrument)	2022-10-27	2027-10-31
SARARE	Service air receiver	2021-09-16	2027-01-31
BILPIP	Bilge water piping	2022-10-27	2027-10-31
BBFPUI	Bilge water pumping unit AP(Pump Room) (Main centrifugal)	2022-10-27	2027-10-31
BBFPUI	Bilge water pumping unit FS(Pump Room) (Main centrifugal)	2022-10-27	2027-10-31
BBFPUI	Bilge water pumping unit P(Pump Room) (Emergency)	2022-10-27	2027-10-31
BBFPUI	Bilge water pumping unit S(Pump Room) (Emergency)	2022-10-27	2027-10-31
BBFPUI	Ballast pumping unit/Bilge water pumping unit FP/P (Emergency)	2022-10-27	2027-10-31

Code	Description	Last survey	Next survey	Status
BBFPUI	Ballast pumping unit/Bilge water pumping unit AS/S (Emergency)	2022-10-27	2027-10-31	
OBWPUI	Oily bilge water pumping unit AS(Pump Room) (Seperator)	2022-10-27	2027-10-31	
OBWPUI	Oily bilge water pumping unit FP(Pump Room) (Seperator)	2022-10-27	2027-10-31	
BALPIP	Ballast piping	2022-10-27	2027-10-31	
BBFPUI	Ballast pumping unit AP(Pump Room) (Main)	2022-10-27	2027-10-31	
BBFPUI	Ballast pumping unit AP(Pump Room) (Lift)	2022-10-27	2027-10-31	
BBFPUI	Ballast pumping unit AS(Pump Room) (Main)	2022-10-27	2027-10-31	
BBFPUI	Ballast pumping unit AS(Pump Room) (Lift)	2022-10-27	2027-10-31	
BBFPUI	Ballast pumping unit FP(Pump Room) (Main)	2022-10-27	2027-10-31	
BBFPUI	Ballast pumping unit FP(Pump Room) (Lift)	2022-10-27	2027-10-31	
BBFPUI	Ballast pumping unit FS(Pump Room) (Lift)	2022-10-27	2027-10-31	
BBFPUI	Ballast pumping unit FS(Pump Room) (Main)	2022-10-27	2027-10-31	
BBFPUI	Ballast pumping unit P(Pump Room) (Emergency Lift)	2022-10-27	2027-10-31	

Navigation, communication and control (700)

NAVSWL	Navigation light switchboards	2022-10-27	2027-10-31	

Safety (800)

BBFPUI	Fire water pumping unit, main AP(Pump Room)	2022-10-27	2027-10-31	
BBFPUI	Fire water pumping unit, main AS(Tween Deck) (Booster)	2022-10-27	2027-10-31	
BBFPUI	Fire water pumping unit, main FP(Main Deck) (Start up)	2022-10-27	2027-10-31	
BBFPUI	Fire water pumping unit, main FS(Main Deck) (Start up)	2022-10-27	2027-10-31	
BBFPUI	Fire water pumping unit, main FS(Pump Room)	2022-10-27	2027-10-31	
FIEPUI	Fire water pumping units, emergency	2022-10-27	2027-10-31	

Cargo handling (1000)

CARPIP	Cargo piping	2022-10-27	2027-10-31	

HULL ITEMS

Code	Description	Last survey	Next survey	Status

Main structure (100)

HULEXA	Void column tank 1S(BT-2A)(012-020)	2022-06-25		
HULEXA	Void column tank 1S(BT-2B)(012-020)	2022-06-25		
HULEXA	Void column tank 1S(BT-3A)(012-020)	2021-09-16		
HULEXA	Void column tank 1S(BT-3B)(012-020)	2021-09-22		
HULEXA	Void column tank 1S(BT-4A)(012-020)	2021-09-16		
HULEXA	Void column tank 1S(BT-4B)(012-020)	2021-09-16		
HULEXA	Void column tank 1S(CL-2A)(016.5-025)	2022-06-25		
HULEXA	Void column tank 1S(CL-2B)(025-032.5)	2022-06-25		
HULEXA	Void column tank 1S(CL-3A)(016.5-025)	2021-09-16		
HULEXA	Void column tank 1S(CL-3B)(016.5-025)	2021-09-22		
HULEXA	Void column tank 1S(CL-3C)(025-032.5)	2021-09-16		
HULEXA	Void column tank 1S(CL-3D)(025-032.5)	2021-09-22		
HULEXA	Void column tank 1S(CL-4A)(016.5-032.5)	2021-09-16		
HULEXA	Void column tank 2P(BT-2A)(012-020)	2022-06-25		

HULEXA Void column tank 2P(BT-2B)(012-020) 2022-06-25

HULEXA Void column tank 2P(BT-3A)(012-020) 2021-12-22

HULEXAVoid column tank 2P(BT-3B)(012-020)	2021-12-22
HULEXAVoid column tank 2P(BT-4A)(012-020)	2021-12-22
HULEXAVoid column tank 2P(BT-4B)(012-020)	2021-12-22
HULEXAVoid column tank 2P(CL-2A)(016.5-025)	2022-06-25
HULEXAVoid column tank 2P(CL-2B)(025-032.5)	2022-06-25
HULEXAVoid column tank 2P(CL-3A)(016.5-025)	2021-12-22
HULEXAVoid column tank 2P(CL-3B)(016.5-025)	2021-12-22
HULEXAVoid column tank 2P(CL-3C)(020-030)	2021-12-22
HULEXAVoid column tank 2P(CL-3D)(020-030)	2021-12-22
HULEXAVoid column tank 2P(CL-4A)(016.5-032.5)	2021-12-22
HULEXAVoid column tank 3(CL-3B)(068.5-086.5)	2022-08-21
HULEXAVoid column tank 3S(BT-1)(067-086)	2022-08-21
HULEXAVoid column tank 3S(BT-2A)(067-086)	2022-08-21
HULEXAVoid column tank 3S(BT-2B)(067-086)	2022-06-25
HULEXAVoid column tank 3S(BT-3)(067-086)	2022-08-21
HULEXAVoid column tank 3S(BT-4)(067-086)	2022-08-21
HULEXAVoid column tank 3S(CL-1A)(068.5-086.5)	2022-08-21
HULEXAVoid column tank 3S(CL-1B)(068.5-086.5)	2022-06-25
HULEXAVoid column tank 3S(CL-2A)(068.5-086.5)	2022-06-25
HULEXAVoid column tank 3S(CL-2B)(068.5-086.5)	2022-06-25
HULEXAVoid column tank 3S(CL-3A)(068.5-086.5)	2022-08-21
HULEXAVoid column tank 3S(CL-4)(068.5-086.5)	2022-08-21
HULEXAVoid column tank 4P(BT-1)(067-086)	2022-08-21
HULEXAVoid column tank 4P(BT-2A)(067-086)	2022-06-25
HULEXAVoid column tank 4P(BT-2B)(067-086)	2022-06-25
HULEXAVoid column tank 4P(BT-3)(067-086)	2022-08-21
HULEXAVoid column tank 4P(BT-4)(067-086)	2022-08-21
HULEXAVoid column tank 4P(CL-1A)(068.5-086.5)	2022-08-21
HULEXAVoid column tank 4P(CL-1B)(068.5-086.5)	2022-06-25
HULEXAVoid column tank 4P(CL-2A)(068.5-086.5)	2022-06-25
HULEXAVoid column tank 4P(CL-2B)(068.5-086.5)	2022-06-25
HULEXAVoid column tank 4P(CL-3A)(068.5-086.5)	2022-08-21
HULEXAVoid column tank 4P(CL-3B)(068.5-086.5)	2022-08-21
HULEXAVoid column tank 4P(CL-4)(068.5-086.5)	2022-08-21
HULEXAVoid column tank 5S(BT-2A)(134-142)	2022-08-05
HULEXAVoid column tank 5S(BT-2B)(134-142)	2022-08-05
HULEXAVoid column tank 5S(BT-3A)(134-142)	2022-08-05

Code	Description	Last survey Next survey Status
HULEXAVoid column tank 5S(BT-3B)(134-142)	2022-08-05	
HULEXAVoid column tank 5S(BT-4A)(134-142)	2022-08-21	
HULEXAVoid column tank 5S(BT-4B)(134-142)	2022-08-21	
HULEXAVoid column tank 5S(CL-2A)(120.5-129)	2022-08-05	
HULEXAVoid column tank 5S(CL-2B)(129-136.5)	2022-08-05	
HULEXAVoid column tank 5S(CL-3A)(120.5-136.5)	2022-08-05	
HULEXAVoid column tank 5S(CL-3B)(120.5-129)	2022-08-05	
HULEXAVoid column tank 5S(CL-3C)(129-136.5)	2022-08-05	
HULEXAVoid column tank 5S(CL-3D)(129-136.5)	2022-08-05	
HULEXAVoid column tank 5S(CL-4A)(120.5-129)	2022-08-05	
HULEXAVoid column tank 6P(BT-2A)(134-142)	2022-08-21	
HULEXAVoid column tank 6P(BT-2B)(134-142)	2022-08-21	
HULEXAVoid column tank 6P(BT-3A)(134-142)	2022-08-21	
HULEXAVoid column tank 6P(BT-3B)(134-142)	2022-08-21	
HULEXAVoid column tank 6P(BT-4A)(134-142)	2022-08-21	
HULEXAVoid column tank 6P(BT-4B)(134-142)	2022-08-21	
HULEXAVoid column tank 6P(CL-2A)(120.5-129)	2022-08-05	
HULEXAVoid column tank 6P(CL-2B)(129-136.5)	2022-08-05	
HULEXAVoid column tank 6P(CL-3A)(120.5-136.5)	2022-08-05	
HULEXAVoid column tank 6P(CL-3B)(120.5-129)	2022-08-05	
HULEXAVoid column tank 6P(CL-3C)(129-136.5)	2022-08-05	
HULEXAVoid column tank 6P(CL-3D)(129-136.5)	2022-08-05	
HULEXAVoid column tank 6P(CL-4A)(120.5-129)	2022-08-05	
HULEXAVoid pontoon tank 1S(CL-1A)(016.5-032.5)	2021-09-16	
HULEXAVoid pontoon tank 1S(CL-1B)(025-039)	2022-06-25	
HULEXAVoid pontoon tank 1S(CL-1C)(025-F)	2022-06-25	
HULEXAVoid pontoon tank 1S(VSP-A)(026-028)	2022-10-03	

Code	Description	Last survey Next survey Status
HULEXAVoid pontoon tank 2P(CL-1A)(016.5-032.5)	2021-12-22	
HULEXAVoid pontoon tank 2P(CL-1B)(025-039)	2022-06-25	
HULEXAVoid pontoon tank 2P(CL-1C)(025-F)	2022-06-25	
HULEXAVoid pontoon tank 2P(VSP-C)(026-028)	2021-12-22	
HULEXAVoid pontoon tank 5S(CL-1A)(120.5-136.5)	2022-08-05	
HULEXAVoid pontoon tank 5S(CL-1B)(115-129)	2022-08-05	
HULEXAVoid pontoon tank 5S(CL-1C)(A-129)	2022-08-05	
HULEXAVoid pontoon tank 5S(VSP-B)(126-128)	2022-08-05	
HULEXAVoid pontoon tank 6P(CL-1A)(120.5-136.5)	2022-08-05	
HULEXAVoid pontoon tank 6P(CL-1B)(115-129)	2022-08-05	
HULEXAVoid pontoon tank 6P(CL-1C)(A-129)	2022-08-05	
HULEXAVoid pontoon tank 6P(VSP-D)(126-128)	2022-08-05	
HULEXAVoid space 5AS(VS-4A)(120.5-129) (Cofferdam)	2022-08-05	
HULEXAVoid space 5FS(VS-4A)(129-136.5) (Cofferdam)	2022-08-05	

Hull equipment (300)

HULEXAChain locker AP(Main Deck)	2022-08-05	
HULEXAChain locker AS(Main Deck)	2022-08-05	
HULEXAChain locker FP(Main Deck)	2021-12-22	
HULEXAChain locker FS(Main Deck)	2022-10-03	
HULEXAChain locker	2022-10-03	

Machinery- and marine piping systems (600)

HULEXAFuel oil tank P(Pedestal)(075.5-080) (Diesel, Distribution)	2022-08-21	
HULEXAFuel oil tank S(Pedestal)(067-071.5) (Diesel, Distribution)	2022-08-21	
HULEXAFuel oil column tank P(Column 6)(121.5-129) (Diesel, Settling)	2022-08-21	
HULEXAFuel oil pontoon tank 5PI(P)(051-077) (Diesel, Storage)	2022-08-21	
HULEXAFuel oil pontoon tank 7SI(S)(077-103) (Diesel, Storage)	2022-08-21	
HULEXAFresh water pontoon tank 4SO(S)(051-077) (Potable)	2022-10-02	
HULEXAFresh water pontoon tank 6PO(P)(077-103) (Potable)	2022-10-02	
BTKEXABallast pontoon tank 10PI(A)(A-129)	2022-10-03	
BTKEXABallast pontoon tank 10PO(B)(A-129)	2022-10-03	
BTKEXABallast pontoon tank 10SI(A)(A-129)	2022-08-21	
BTKEXABallast pontoon tank 10SO(B)(A-129)	2022-08-05	
BTKEXABallast pontoon tank 1FS(TP)(019-039)	2021-09-22	
BTKEXABallast pontoon tank 1P(PA)(025-F)	2021-12-22	
BTKEXABallast pontoon tank 1P(PB)(025-F)	2021-12-22	
BTKEXABallast pontoon tank 1SI(SA)(025-F)	2021-09-22	
BTKEXABallast pontoon tank 1SO(SB)(025-F)	2021-09-16	

Code	Description	Last survey Next survey Status
BTKEXABallast pontoon tank 2FC(TP)(019-039)	2021-09-22	
BTKEXABallast pontoon tank 2PO(P)(025-051)	2021-12-22	
BTKEXABallast pontoon tank 2SO(S)(025-051)	2021-09-22	
BTKEXABallast pontoon tank 3FP(TP)(019-039)	2022-10-27	
BTKEXABallast pontoon tank 3PI(P)(025-051)	2022-10-27	
BTKEXABallast pontoon tank 3SI(S)(025-051)	2021-09-22	
BTKEXABallast pontoon tank 4AS(TP)(115-135)	2022-08-05	
BTKEXABallast pontoon tank 4PO(P)(051-077)	2022-10-02	
BTKEXABallast pontoon tank 5AC(TP)(115-135)	2022-10-03	
BTKEXABallast pontoon tank 6AP(TP)(115-135)	2022-08-21	
BTKEXABallast pontoon tank 6SO(S)(077-103)	2022-10-02	
BTKEXABallast pontoon tank 8PO(P)(103-129)	2022-10-03	
BTKEXABallast pontoon tank 8SO(S)(103-129)	2022-08-21	
BTKEXABallast pontoon tank 9PI(P)(103-129)	2022-08-21	
BTKEXABallast pontoon tank 9SI(S)(103-129)	2022-08-21	
HULEXADrain water column tank 1S(025-028) (Sea Water)	2022-10-03	
HULEXADrain water column tank 2P(025-028) (Sea Water)	2022-10-27	
HULEXADrain water column tank 5S(126-129) (Sea Water)	2022-08-21	
HULEXADrain water column tank 6P(126-129) (Sea Water)	2022-10-03	

TANKS AND SPACES ANNUAL

None

Cod. Material	Material	Função Química	Descrição do produto	Estoque Atual	Ponto reabast.	Estoque máximo	Transitório de Saída	Autonomia histórico
10.098.864	Graxa lub. bd c/20Kg	Graxa Lubrificante	LUBRAX LITH 3	280	80	100	0	84
10.098.880	Graxa lub. bd c/20Kg	Graxa Lubrificante	LUBRAX LITH SM 2	80	40	60	0	24
10.100.763	Óleo lub transm ISO 220 bd 20L	Óleo Lubrificante	LUBRAX GEAR 220	260	200	300	40	195
10.100.904	Óleo de corte P/usinagem bd c/20,0 L	Óleo Lubrificante	LUBRAX UTILE PE	0	0	0	0	0
10.101.337	Óleo lub transm ISO 150 bd 20L	Óleo Lubrificante	LUBRAX GEAR 150	0	80	100	0	0
10.101.354	Óleo hidráulico tb c/ 200L	Óleo Lubrificante	LUBRAX HYDRA XP 46	1.600,00	800	1.000,00	0	0
10.112.473	Óleo lubrific. SAE 15W/40 tb 200L	Óleo Lubrificante	LUBRAX TOP TURBO	600	1.200,00	2.000,00	0	0
10.262.825	Graxa lub. bd c/20Kg	Graxa Lubrificante	LUBRAX LITHPLUS EP 2	14	2	3	0	209
10.496.012	Óleo hidráulico bd 20L	Óleo Lubrificante	LUBRAX HYDRA XP 46	100	50	60	0	0
10.575.427	Graxa lub. bd c/10Kg	Graxa Lubrificante	LUBRAX POLYTEC 2	80	15	20	0	0
10.694.093	Hipcl. de sódio sol. aquosa bb c/50l	Hipoclorito de Sódio	HIPOCLORITO DE SODIO	850	1.000,00	1.200,00	0	73
10.725.700	Óleo hidráulico tb c/ 200L	Óleo Lubrificante	LUBRAX HYDRA XP 22	3	1	2	2	0
11.164.480	Óleo lubrific. ISO 150 bd 20L	Óleo Lubrificante	LUBRAX TURBINA X 150	600	80	100	0	0
11.164.642	Óleo lub transm SAE 75W/90 bd 20L	Óleo Lubrificante	LUBRAX GOLD 75W90	240	80	100	0	0
11.164.669	Óleo hidráulico tb c/ 200L	Óleo Lubrificante	LUBRAX HYDRA XP 68	800	1.300,00	1.600,00	600	0
11.164.687	Óleo hidráulico tb c/ 200L	Óleo Lubrificante	LUBRAX HYDRA XP 220	400	300	400	0	0
11.164.783	Óleo lub. ISO100 bd 20L	Óleo Lubrificante	LUBRAX COMPSOR AC 100	340	0	0	0	0
11.164.800	Óleo lub.sint. ISO68 bd 20L	Óleo Lubrificante	LUBRAX COMPSOR PAO 68	200	190	260	60	0
11.164.854	Graxa lub. bd c/20Kg	Graxa Lubrificante	LUBRAX HILITH EP 0/1	40	60	80	80	0
11.991.218	Óleo lubrific. cx 6Fr 3L	Óleo Lubrificante	LUBRAX TECNO 10W40	54	18	36	0	0

12.175.769	Óleo hidráulico tb c/ 200L	Óleo Lubrificante	LUBRAX HYDRA XP 32 (EF)	1.200,00	1.500,00	2.000,00	0	30
12.441.248	Óleo lubrific. SAE 15W/40 tb 200L	Óleo Lubrificante	LUBRAX TOP TURBO PRO	1.400,00	2.700,00	3.200,00	2.200,00	42
12.504.420	Óleo lubrific. bd 20L	Óleo Lubrificante	LUBRAX TURBINA X 68	580	0	0	0	0
12.504.981	Óleo lubrific. bd 20L	Óleo Lubrificante	LUBRAX TURBINA X 100	180	70	80	0	0
12.505.117	Óleo lubrific. bd 20L	Óleo Lubrificante	LUBRAX TURBINA X 46	0	0	0	0	0
12.505.436	Óleo lubrific. tb 200L	Óleo Lubrificante	LUBRAX TURBINA X 32	1.200,00	0	0	0	0
12.665.881	Hidróxido de sódio sc c/25Kg	Soda Cáustica Sólida	SODA CÁUSTICA 98%	50	35	50	0	0
12.665.990	Água desmireralizada bb c/20L	Água Desmineralizada	ÁGUA DESMINERALIZADA	280	0	0	0	0
12.665.998	Inibidor corrosão tb c/200L	Inibidor de Corrosão para Utilidades	SISBRAX CORR5230	1.800,00	1.000,00	1.250,00	0	0
12.665.999	Água destilada bb c/20L	Água Destilada	ÁGUA DESTILADA	1.680,00	1.800,00	2.000,00	0	1260

12.666.021	Ácido clorídrico 30-35% mas. Bb 20,0L	Ácido Clorídrico	ÁCIDO CLORÍDRICO	260	90	120	0	0
12.666.961	Gasolina BR Premium tb 200L	Gasolina Premium	GASOLINA PREMIUM	200	100	200	0	0
12.719.521	Graxa lub. bd c/20Kg	Graxa Lubrificante	LUBRAX CLAY ADS 2	260	120	140	40	390
12.723.176	Fluido hidráulico bb 200L	Fluido Hidráulico Subsea	TRANSAQUA DW	1.200,00	0	0	0	0
12.751.235	Ácido sulfâmico Bb 25Kg	Ácido Sulfâmico Inibido	SAF-ACID	1.500,00	500	600	0	0

Quantidade Solicitada	Unidade de medida	Estoque Disp. OpL	NM substituto	NM obsoleto	Autonomia pre	Criticidade	Centro	Depósito	Descrição Depósito	Tipo de MRP	Regra Cálc Tam Lotes	Val Arredond.
0	KG		Não	Não	0	0	2161	26M0	P-26 Manutenção	ZB	HB	20
300	KG		Não	Não	0	0	2161	26M0	P-26 Manutenção	ZB	HB	20
60	L		Não	Não	0	0	2161	26M0	P-26 Manutenção	ZB	HB	20
20	L		Não	Não	0	0	2161	26M0	P-26 Manutenção	ZD	EX	20
100	L		Não	Não	0	0	2161	26M0	P-26 Manutenção	ZB	HB	20
200	L		Não	Não	0	0	2161	26M0	P-26 Manutenção	ZB	HB	200
1.400,00	L		Não	Não	0	0	2161	26M0	P-26 Manutenção	ZB	HB	200
0	UN		Não	Não	1	0	2161	26M0	P-26 Manutenção	ZB	HB	1
0	L		Não	Não	2	0	2161	26M0	P-26 Manutenção	ZB	HB	20
0	KG		Não	Não	2	0	2161	26M0	P-26 Manutenção	ZB	HB	10
850	L		Não	Não	0	0	2161	26M0	P-26 Manutenção	ZB	HB	50
39	UN		Não	Não	0	0	2161	26M0	P-26 Manutenção	ZB	HB	1
0	L		Não	Não	0	0	2161	26M0	P-26 Manutenção	ZB	HB	20
40	L		Não	Não	0	0	2161	26M0	P-26 Manutenção	ZB	HB	20
1.400,00	L		Não	Não	0	0	2161	26M0	P-26 Manutenção	ZB	HB	200
400	L		Não	Não	0	0	2161	26M0	P-26 Manutenção	ZB	HB	200
100	L		Não	Não	0	0	2161	26M0	P-26 Manutenção	ZD	EX	20
260	L		Não	Não	0	0	2161	26M0	P-26 Manutenção	ZB	HB	20
80	KG		Não	Não	0	0	2161	26M0	P-26 Manutenção	ZB	HB	20
0	L		Não	Não	0	0	2161	26M0	P-26 Manutenção	ZB	HB	18
800	L		Não	Não	0	0	2161	26M0	P-26 Manutenção	ZB	HB	200
3.600,00	L		Não	Não	0	0	2161	26M0	P-26 Manutenção	ZB	HB	200

0	L		Não	Não	0	0	2161	26M0	P-26 Manutenção	ZD	EX	20
0	L		Não	Não	0	0	2161	26M0	P-26 Manutenção	ZB	HB	20
0	L		Não	Não	0	0	2161	26M0	P-26 Manutenção	ZD	EX	20
0	L		Não	Não	0	0	2161	26M0	P-26 Manutenção	ZD	EX	200
25	KG		Não	Não	0	0	2161	26M0	P-26 Manutenção	ZB	HB	25
720	L		Não	Não	0	0	2161	26M0	P-26 Manutenção	ZD	EX	20
200	L		Não	Não	0	0	2161	26M0	P-26 Manutenção	ZB	HB	200
320	L		Não	Não	0	0	2161	26M0	P-26 Manutenção	ZB	HB	20

0	L		Não	Não	0	0	2161	26M0	P-26 Manutenção	ZB	HB	20
200	L		Não	Não	34	0	2161	26M0	P-26 Manutenção	ZD	EX	200
40	KG		Não	Não	0	0	2161	26M0	P-26 Manutenção	ZB	HB	20
0	L		Não	Não	0	2	2161	26M0	P-26 Manutenção	ZD	EX	200
0	KG		Não	Não	0	0	2161	26M0	P-26 Manutenção	ZB	HB	25

Estoque Planejado e em transito	Estoque Pendente de Aceite	Tam.mín. lote	Tam.máximo lote	Estq.segurança
		0	0	40
		0	0	20
		0	0	160
		0	0	0
		0	0	40
		0	0	600
		0	0	1.000,00
		0	0	1
		0	0	40
		0	0	0
		0	0	600
		0	0	1
		0	0	40
		0	0	60
		0	0	0
		0	0	200
		0	0	0
		0	0	0
		0	0	0
		0	0	18
		0	0	0
		0	0	0

		0	0	0
		0	0	40
		0	0	0
		0	0	0
		0	0	0
		0	0	0
		0	0	500
		0	0	1.200,00

		0	0	60
		0	0	0
		0	0	60
		0	0	0
		0	0	375

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Petrobras 26 (P-26)

E&P

PETROBRAS

Sistema de Gerenciamento de Segurança Operacional - SGSO

Descrição da Unidade Marítima - DUM

SGSO-DUM-Petrobras 26

Processo Administrativo na ANP
48610.201285/2019-61

Revisão 06

PETROBRAS

E & P

CONTROLE DE REVISÕES

REV	DESCRIÇÃO	DATA
00	Documento Original	27/04/2010
01	Revisão para atendimento às solicitações do ofício da ANP nº 236/CSO/2010.	17/08/2010
02	Atualização das informações dos itens 1.1, 2.1.1, 2.4 e 2.6.3.2.	07/07/2011
03	Revisão dos itens 1.1, 1.2, 1.3, 2.1.1, 2.1.2, 2.2.1.10, 2.3.1, 2.3.2.3, 2.3.2.4, 2.5, 2.6.1, 2.9, 3.1, 3.3, 3.4, 4, Anexo 2 e atendimento ao Ofício nº 424/SSM/2014.	01/02/2016
04	Atualização das informações dos itens 1.1, 2.1.2, 2.2.1, 2.2.1.2, 2.2.1.3, 2.2.1.4, 2.2.1.6, 2.2.1.7, 2.2.1.10, 2.2.2, 2.3.1, 2.3.2, 2.4, 2.5, 2.6.1, 2.6.2, 2.6.3.1, 2.6.3.2, 2.6.3.3, 2.7.2, 2.8.1, 2.8.2, 2.8.3, 2.9, 3.1, 3.1.1, 3.1.2, 3.2, 3.3, 3.4, 3.5, 3.6.2, 5, Anexo 1 e Anexo 2.	14/09/2017
05	Atualização das informações dos itens: 1.1; 1.2; 2.1.1; 2.1.2; 2.6.1; 3.6.2; 4.	03/04/2020
06	Revisada(s) a(s) seção(ões): 2.1.2, 2.2.1, 2.2.1.2, 2.2.1.3, 2.2.1.7, 2.3, 2.3.1, 2.4, 2.7, 2.7.1, 2.7.2, 2.8, 2.8.3, 2.9, 3.1, 3.1.2, 3.1.2, 3.2, 3.3, 3.4, 3.5, 4	

	Original	Rev. 01	Rev. 02	Rev. 03	Rev. 04	Rev. 05	Rev. 06	Rev. 07
Data	27/04/2010	17/08/2010	07/07/2011	01/02/2016	14/09/2017	03/04/2020		
Elaboração	Luiz Carlos	Pietro	Vinicius Moreira	Vinícius Moreira	Rodrigo Barroso	Letícia Souza	Letícia	
Verificação	Marcelo Fernandes	Arueira	Renato Loureiro	Renato Loureiro	Artur Pader	Eduardo Percu	Maurício	
Aprovação	Renato	Renato	Guilherme Pinheiro	Roberto Campello	Marcos William	Marcelo Lemos	Ricardo	

ÍNDICE GERAL

1 - Identificação da Atividade

1.1 - IDENTIFICAÇAO DO OPERADOR CONCESSIONARIO

Identificação do concessionário e operador da instalação

a) Nome: Petróleo Brasileiro S.A. - Petrobras - Unidade de Negócio de Exploração e Produção da Bacia de Campos - UN-BC

b) Endereço: Av. Elias Agostinho, n° 665, Imbetiba, Macaé, RJ - CEP 27913350

c) Telefone: (22) 3377-3867

1.2 - IDENTIFICAÇAO DA INSTALAÇAO DE PRODUÇAO

a) Nome da Instalação :

Petrobras 26 (P-26)

b) Proprietário :

Petrobras Netherlands

c) Número IMO :

8764169

d) Bandeira :

Panamá

e) Sociedade Classificadora :

Det Norske Veritas - DNV

f) Classificação :

Semi-submersível - SS

g) Ano de construção :

1984

h) Ano de conversão :

1997

i) Ano de último upgrade :

Não aplicável

1.3 - LOCALIZAÇAO DA INSTALAÇAO DE PRODUÇAO

A P-26 está localizada a 180 km da costa da cidade de Macaé, em lâmina

d'água de 990 m de profundidade.

As informações da localização são:

a) Bacia :

Bacia de Campos

b) Campo :

Marlim

c) Coordenadas :

Datum SIRGAS 2000				
ID_FEICAO	**TIPO_FEICAO**	**NUM_VERTICE**	**LATITUDE**	**LONGITUDE**
P-26	Ponto	1	-22:28:07,282	-40:01:43,604

2 - Descrição da Instalação

2.1 - CARACTERISTICAS PRINCIPAIS DA UNIDADE

A instalação é uma unidade flutuante de produção, processamento e transferência de óleo e gás, tipo semi-submersível (SS) com as seguintes características:

2.1.1 - Características Físicas

a) Comprimento total :

134 m

b) Largura total :

67,20m

c) Boca :

96,90 m

d) Calado de operação :

19 m

e) Calado de trânsito :

bruta: 8,07 m

f) Deslocamento no calado de operação :

34.880 t

g) Deslocamento no calado de trânsito :

34.880 t

h) Deslocamento leve :

11.335,40 t

i) Capacidade de Alojamento :

185 pessoas. Este número poderá variar, em função da fase do ciclo de vida da instalação ou da necessidade de realização de atividades que requeiram acréscimo de mão de obra, e será determinado pelo número máximo admissível de vagas disponíveis para salvatagem, descrito no item 2.4. Sistema de Salvatagem, e condicionado às regras estabelecidas por regulamentações específicas do Ministério do Trabalho e Emprego e da Marinha do Brasil.

2.1.2 - Características Operacionais

Abaixo informamos algumas características da instalação que têm valores

variáveis em função das condições operacionais, população embarcada, etc. Destacamos que, durante auditorias ou inspeções na plataforma, poderão ser encontrados valores diferentes dos informados neste momento, não caracterizando não conformidades.

Desde 23/02/2020 a produção da P-26 foi cessada, iniciando-se o processo de descomissionamento da unidade.

a) Capacidade de Produção :

- Óleo: 16.000 m³/d ((100,000 bbl/d)
- Gás: 3.000.000 Nm³/d (tratamento)

b) Produção Atual :

Não aplicável. Unidade em descomissionamento, não há produção atualmente.

c) Capacidade de Processamento :

- Petróleo: 16.000 m³/d (100,000 bbl/d)
- Gás Natural: 3.000.000 Nm³/d (tratamento)
- Gás Combustível: 720.000 Nm³/d

d) Capacidade de Armazenamento de Petróleo :

Não Aplicável

e) Capacidade de Compressão de Gás Natural :

Não aplicável. Unidade em descomissionamento, não há compressão atualmente.

f) Demanda de combustível :

- Diesel: 150 m³/mês
- Gás Natural: 192.000 Nm³/d

g) Capacidade de armazenamento de combustíveis líquidos :

- Diesel: 1545,14 m³

h) Demanda e Capacidade de Armazenamento de Água :

S

S

Os volume abaixo indicados são aproximados e já contemplam a água dessalinizada e água recebida de terra:

- Demanda de Água Industrial / Potável: 2800 m³/mês.
- Capacidade de Armazenamento de Água Industrial / Potável: 1330,40m³

S

2.2.1.2 - Sistema de Aquecimento e Refrigeração

a) Sistema de Aquecimento :

A P-26 não possui sistema de aquecimento.

s

ransformadore , salas de controle, salas de UPS, sala Banco de Capacitores, salas de Baterias, etc.

Os principais equipamentos do sistema são:

S

compreendem o sistema estão descritos no item 2.3.1.

b) Água Salgada :

S

ndicador de pre são e um transmissor indicador de vazão, seguindo para os anques de armazenamento de óleo Diesel.

A limpeza de óleo Diesel é obtida através das centrífugas do tipo limpeza automática programada. As centrifugas são alimentados por bombas rotativas

por duas unidades de ar comprimido de instrumentos/serviço, sendo uma reserva. No caso de alto consumo do ar de serviço, a pressão do sistema cai e o compressor de reserva começa a operar.

O ar comprimido é secado nas Unidades Secadoras de Ar. O ponto de

o sistema de drenagem aberta.

A água coletada é tratada pelo tubo de despejo. Após o tratamento, a água é descarregada para o mar enquanto o óleo vai para o tanque de sobras (Slop). Em seguida, a bomba de borras transfere este óleo do Slop para o processo de

2.2.1.7 - Sistema de Flare

Os equipamentos da planta de processamento possuem sistemas de

2.2.1.8 - Sistema de Geração de Gases Inertes

A P-26 não possui Sistema de Geração de Gases Inertes.

2.2.1.9 - Sistema de Coleta, Manuseio e Disposição Final de Resíduos

Resíduos são segregados e depositados em coletores adequados e enviados a terra para o seu destino final.

A gestão de efluentes e a gestão de resíduos são objeto de verificação do IBAMA - Instituto Brasileiro do Meio ambiente e dos Recursos Naturais e tratados conforme procedimentos aprovados pelo referido órgão.

2.2.1.10 - Sistema de Gerenciamento de Substâncias Perigosas

A plataforma possui áreas especificas para armazenamento de produtos químicos perigosos.

Os produtos químicos são armazenados segundo as regras de compatibilidade química, promovendo assim a segurança no armazenamento. Os produtos químicos para injeção no processo são recebidos em tanques e transferidos para os tanques fixos.

Os produtos químicos perigosos são controlados através da disponibilização das informações de segurança para a força de trabalho por um sistema de gerenciamento de informações onde todos os produtos químicos perigosos são mapeados e suas informações são atualizadas.

O descarte de resíduos é feito conforme item 2.2.1.9.

2.2.2 - Sistema de Lastro

Este sistema visa o controle da estabilidade da plataforma, possibilitando o enchimento e esvaziamento dos tanques de lastro e drenagem dos tanques "voids". A capacidade dos tanques e a movimentação entre eles estão descritas no item 2.3.

2.3 - SISTEMA DE TANCAGEM

2.3.1 - Sistema de Tancagem

A P-26 possui tanques de armazenamento utilizados para óleo diesel, água

de lastro, água doce e rejeitos com os respectivos volumes:

Fluido	Tanque	Capacidade (m3)
Óleo diesel	TQ P5 (Armazenamento)	684,70
	TQ S7 (Armazenamento	684,70
	TQ-612502 A (Distribuição)	69,05
	TQ-612502 B (Distribuição)	69,05
	TQ-612501 (Distribuição)	37,64
Lastro	TQ nº S1A	425,2
	TQ nº S1B	425,2
	TQ nº P1A	425,2
	TQ nº P1B	425,2
	TQ nº S2	701,80
	TQ nº P2	701,80
	TQ nº S3	663,60
	TQ nº P3	663,60
	TQ nº P4	701,80
	TQ nº S6	701,80
	TQ nº S8	701,80
	TQ nº P8	701,80
	TQ nº S9	663,60
	TQ nº P9	663,60
	TQ nº S10A	425,20
	TQ nº S10B	425,20
	TQ nº P10A	425,20
	TQ nº P10B	425,20
	TQ nº TP1	803,90
	TQ nº TP2	820,30
	TQ nº TP3	820,30
	TQ nº TP4	820,30
	TQ nº TP5	820,30
	TQ nº TP6	803,90
Água Potável/Industrial	TQ nº S4	665,20
	TQ nº P6	665,20
	*Dessalinizadora	100,00
Rejeitos	TQ nº TD-533601	10,00
	TQ nº V-533602 (Slop)	20,0
Utilidades	Tanque de Concentrado de Espuma (TQ-542401)	1,0
	Tanque de bomba de incêndio (TQ-UB-542001 A)	6,45
	Tanque de bomba de incêndio (TQ-UB-542001 B)	6,45
	Tanque de gerador de emergência (TQ-GE-514002 A)	5,816
	Tanque de gerador de emergência (TQ-GE-514002 B)	5,816
	Tanque do compressor de ar de partida (TQ-UC-513402 B)	0,19

*Há uma dessalinizadora a bordo da P-26 para produção de água potável, com capacidade diária de 100 m².

2.3.2 - Fluxo de Movimentação de Fluídos entre Tanques

O controle de todos os fluidos armazenados nos tanques de carga, óleo diesel, lastro, água e rejeitos da P-26 são automatizados, monitorados, supervisionados e operados da Sala de Controle Central - CCR.

O volume dos tanques é monitorado pelo Sistema de Monitoramento de Cargas - CMS, que é integrado aos painéis do PLC de Controle e Intertravamento Seguro e a ECOS. O CMS recebe sinais de chaves de nível alto e os envia para o Sistema de Controle e Intertravamento - CIS.

Por sua vez, o CIS é responsável pelas manobras das válvulas dos tanques, partida/parada remota de bombas, ventiladores e outros equipamentos, abertura/fechamento remoto das válvulas de lastro, esgoto, carga e limpeza, abertura/fechamento remoto dos "dampers", seqüências automáticas de carregamento e descarregamento, intertravamento dos sistemas de gás inerte, hidráulicos, auxiliares, etc.

A movimentação de fluidos entre tanques é feita através de bombas e redes específicas, conforme descrição a seguir:

a) Óleo :

A P-26 não possui Tanques de Armazenamento de Óleo.

b) Lastro :

A unidade contém tanques de lastro descrito no item 2.3.1 e bombas de lastro usadas, descritas na tabela abaixo.

Equipamento	Quantidade	Vazão
Bomba de Lastro em Bombordo	02	400 m³/h
Bomba de Lastro em Boreste	02	400 m³/h
Bomba de Lastro de emergência	02	250 m³/h

c) Óleo Diesel :

As bombas centrífugas são utilizadas para movimentar o diesel entre os tanques de armazenamento e os dois tanques de distribuição, enquanto que as bombas de distribuição movimentam o diesel entre os tanques de distribuição e

os consumidores.

As características dos equipamentos estão descritas no item 2.2.1.4.

d) Água Doce :

A água doce é enviada para dois tanques de estocagem localizados nos submarinos, um para cada bordo.

A distribuição de água doce é feita através de duas bombas que aspiram dos tanques de água doce.

O detalhamento do sistema e as características dos principais equipamentos estão descritas no item 2.2.1.4.

e) Rejeitos :

As drenagens provenientes das águas pluviais e da sala de utilidades são transferidas para o tubo de despejo, e após processo de decantação por gravidade, o resíduo oleoso é transferido para o Slop e a água é descartada no mar.

O detalhamento do sistema e as características dos principais equipamentos estão descritas no item 2.2.1.6.

2.4 - SISTEMA DE SALVATAGEM

O Sistema de Salvatagem da P-26 é dimensionado de acordo com a NORMAM 01 sendo objeto de verificação da Marinha.

A instalação é dotada dos seguintes equipamentos de salvatagem:

Item	Quant.	Características
Embarcação salva-vidas	4	3 com Capacidade para 50 pessoas cada e 1 para 61 pessoas Autonomia de 24h conforme NORMAM-05, Cap.3.
Bote de resgate	1	6 Pessoas
Balsa salva-vidas inflável	9	Capacidade para 25 pessoas cada
Colete salva-vidas	496	Quantitativo conforme NORMAM-01, Cap. 9, Anexo 9ª Tipo Classe I conforme NORMAM-05, Cap. 3, Seção III.
Bóia salva-vidas	32	
Sinalizadores	30	
Foguete pára-quedas	32	
Fumígero	8	

EPIRB	1	
Radar Transponder	6	
Radio portátil para embarcação salva vidas	6	4 rádios na área; 1 na sala de rádio; 1 na sala do GEPLAT.

a) Os "Pontos de Encontro" são localizados em um ambiente seguro fechado, distante da área de processo, com capacidade para reunir as pessoas não envolvidas no controle e transmissão de instruções para evacuação ou abandono da plataforma. Sua localização pode ser alterada para manter a segurança do local em função de necessidades operacionais;

b) Os "Pontos de Abandono" são sempre localizados próximo às baleeiras conforme especificações da NORMAM 01.

Tanto a localização dos "Pontos de Reunião" quanto à localização das baleeiras são sempre informadas nos briefings de segurança por ocasião dos embarques.

2.5 - SISTEMA DE ANCORAGEM / POSICIONAMENTO

O sistema de ancoragem da P-26 é do tipo "Teut leg" com 16 linhas de amarração e composição mista de amarras com cabos de poliéster e 16 estacas de sucção. Cada estaca de sucção constitui-se numa estrutura cilíndrica, pesando em torno de 100 toneladas, a tensão de trabalho das linhas foi calculada para 130ton.

Calados:

Operação = 19 m

Sobrevivência = 18 m

Inspeção = 14,5 m

Trânsito com ancoragem = 8 m

Trânsito sem ancoragem = 7 m

Características das amarras e cabo de poliéster que compõem as linhas:

· 50m de Amarra de fundo de 95mm, tipo NV R3 Rig stud chain carga de ruptura mínima (MBL) 6930kN;

· 1300m de Cabo de Poliéster 152mm, carga de ruptura mínima (MBL) 6970kN;

· 210m de Amarra de superfície de 76mm tipo NV R4 RIG stud chain carga de ruptura mínima (MBL) 6010kN.

Os elementos do sistema de amarração são:

Elementos	Quantidade	Capacidade (MBL)
Linhas de amarração	16	600 t
Estacas de sucção	16	600 t
Guias de amarração submersas	16	600 t
Guias de amarração no convés	16	600 t
Sistemas de guinchos	04	477 t
Conectores submersos	34	600 t

Os sistemas de ancoragem e de posicionamento com linhas fixas são dimensionados de acordo com a Det Norske Veritas - DNV. De um modo geral, esta norma recomenda que os sistemas de ancoragem sejam dimensionados para suportar esforços associados a condições ambientais para as oito direções principais (sul, sudeste, leste, nordeste, norte, noroeste, oeste e sudoeste) com períodos de retorno entre 10 e 100 anos. A tabela abaixo resume as máximas condições ambientais para o projeto da P-26.

CONDIÇÃO AMBIENTAL	DECENÁRIA	CENTENÁRIA
ONDA - altura significativa (H1/3m)	6,9	7,8
VENTO - (m/s)	29,23	37,22
CORRENTE - (m/s)	1,60	1,75

As coordenadas das âncoras do sistema de amarração são apresentadas a

seguir:

Datum SIRGA S2000				
ID_FEICAO	TIPO_FEICAO	NUM_VERTICE	LATITUDE	LONGITUDE
Ancora 1	Ponto	1	-22:27:35,924	-40:01:19,582
Ancora 2	Ponto	1	-22:27:37,667	-40:01:16,516
Ancora 3	Ponto	1	-22:27:42,280	-40:01:12,106
Ancora 4	Ponto	1	-22:27:45,515	-40:01:09,646
Ancora 5	Ponto	1	-22:28:34,416	-40:01:16,022
Ancora 6	Ponto	1	22:28:36,186	-40:01:18,939
Ancora 7	Ponto	1	-22:28:38,279	-40:01:22,174
Ancora 8	Ponto	1	-22:28:39,662	-40:01:24,633
Ancora 9	Ponto	1	-22:28:36,839	-40:02:09,471
Ancora 10	Ponto	1	-22:28:34,743	-40:02:11,729
Ancora 11	Ponto	1	-22:28:31,871	-40:02:13,388
Ancora 12	Ponto	1	-22:28:29,218	-40:02:16,377
Ancora 13	Ponto	1	-22:27:47,765	-40:02:20,162
Ancora 14	Ponto	1	-22:27:45,334	-40:02:18,814
Ancora 15	Ponto	1	-22:27:42,260	-40:02:16,482
Ancora 16	Ponto	1	-22:27:39,381	-40:02:14,186

O Anexo 1 apresenta o Diagrama de Ancoragem da P-26.

2.6 - SISTEMA DE SEGURANÇA, DETECÇAO E COMBATE A INCENDIO

O Sistema de Segurança, Detecção e Combate a Incêndio é composto atualmente pelos seguintes recursos:

2.6.1 - Sistema de Detecção de Fogo e Gás

a) Detectores de fogo :

Têm o objetivo de identificar focos iniciais de incêndio e desta forma evitar que estes adquiram proporções maiores. Os detectores de fogo estão instalados na planta, baseados em uma variedade de princípios ativos, dependendo das características do local que eles protegem.

O acionamento de qualquer um deles alarma na sala de controle e desencadeia as ações descritas no item 3.6.2.

Os tipos de detectores de fogo utilizados são:

- Plug Fusível (ADV): Instalados nas áreas externas de processo, onde há

dilúvio, em uma rede pressurizada com ar de instrumento. A uma temperatura entre 70 e 75 °C o calor produzido pelo incêndio fundirá os fusíveis, despressurizando o circuito entre o plug e a ADV, abrindo automaticamente as válvulas de dilúvio;

- Detectores de Calor de Temperatura fixa (T): Instalado em ambientes fechados, onde as condições ambientais não permitem a utilização de detectores de fumaça.

- Detectores de fumaça (S): instalados em zonas onde os primeiros indícios de fogo são provenientes da emanação de fumaça, como em salas de painéis, baterias, etc;

- Detectores de chama (F) - utilizados para identificar um incêndio baseado na existência de chamas (emissão de raios ultravioleta, e infravermelhos). Na planta este tipo de detector pode ser encontrado no interior dos invólucros dos turbogeradores.

As principais zonas protegidas por detectores de fogo são:

Descrição das Principais Zonas protegidas por detectores de Fogo	T	S	F
Sala de bombas BE		x	
Sala de bombas BB		x	
Bombas de exportação			x
Oficina mecânica	x	x	
Sala de controle		x	
Laboratório	x		
Turbocompressores	x		x
Turbogeradores	x		x

b) Detectores de Gás :

O Sistema de Detecção de Gases tem a função de monitorar continuamente a presença de gás a fim de alertar as pessoas e permitir as ações de controle a serem iniciadas manualmente ou automaticamente, para minimizar a possibilidade de disseminação do fogo, explosão e a probabilidade de exposição das pessoas.

O acionamento de qualquer um dos detectores de gás alarmará na sala controle e iniciará as ações descritas a seguir para cada tipo de detector.

As principais zonas protegidas por detectores de gás são:

Descrição Zonas protegidas por detectores de Gás	CH_4	H_2
Spider Deck - Área de Processo (Z 301)	X	
Main Deck - Área de Processo (Z 401, 402, 403, 404 A, 404 B)	X	
Main Deck - Sala Baterias TCs/TGs (Z 419)		X
Main Deck - Sala de Bombas de Exportação (Z 428)	X	
Tween Deck - Sala Baterias Principal (Z 507 A, 507 B)		X
Upper Deck EL 37500 / 43500 / 45000 - Área de Processo (Z 601A, 601B, 601C, 601D, 601E, 601F)	X	
Turbocompressores (Z 601A, 601B, 601C)	X	
Turbogeradores (Z 607 A, 607 B, 607 C)	X	
Sucção de ar para casario (Z 704, 707)	X	

c) Detectores de H2 :

Os detectores de H_2 na planta de processo estão instalados nos dutos de saída de ar do sistema de ventilação da sala de baterias principal e de turbomáquinas. Estes detectores são do tipo catalítico. A ativação de um destes detectores (10% LIL) gera um alarme na Sala de Controle Central e a partida do sistema reserva dos ventiladores de exaustão na sala de baterias. A ativação de dois detectores (20% LIL) inibe o carregamento das baterias, alarme geral e ativa o ESD-3P.

d) Detectores de H2S :

A P-26 não possui detectores de H²S.

e) Detectores de CO2 :

A P-26 não possui detectores de CO2.

2.6.2 - Sistema de Alarme de Emergência

O sistema de alarme de emergência na plataforma é sonoro e luminoso (luzes de sinalização). O sistema sonoro possui som intermitente para indicação

de emergência e sinal contínuo para indicação de "preparação para abandono". O alarme luminoso é dado por luzes de sinalização e buzina no painel de controle de incêndio na sala de controle. Estes sinais luminosos indicam a área envolvida.

Os níveis de parada de emergência estão descritos no item 3.6.2.

2.6.3 - Sistema de Combate a Incêndio

O sistema de combate a incêndio é composto pelos seguintes subsistemas:

2.6.3.1 - Sistema de Combate a Incêndio por Água

As bombas de pressurização de água (bombas "jockey") mantêm o sistema de combate a incêndio principal constantemente pressurizado a aproximadamente 10 Kgf/cm². Na plataforma, o sistema utiliza a água salgada captada do mar.

A abertura de qualquer ponto de consumo causa queda de pressão no sistema principal ativando os pressostatos de baixa pressão que monitoram a pressão/fluxo no sistema principal. A queda de pressão/fluxo no sistema principal automaticamente ativa o sistema de combate a incêndio por água salgada. As bombas de incêndio também podem ser acionadas manualmente.

As bombas de incêndio principais são compostas por bomba de captação e bomba "booster". As bombas de captação de incêndio captam água de caixas de mar e descarregam-na para as bombas "booster" de incêndio, as quais enviam a água na pressão de operação para o anel de incêndio principal e pressuriza os componentes do sistema por toda a instalação incluindo convés principal, convés das acomodações, praça de máquinas, casa de bombas, etc.

Cada bomba diesel possui um tanque estratégico de combustível com capacidade para 6,45 m3.

Os principais equipamentos do sistema são:

Equipamento	Quant.	Pressão	Vazão / Capacidade
Bomba de Incêndio Principal (Diesel)	02	10 kgf/cm²	1180 m³/h
Bomba de Incêndio Elétrica	01	10 kgf/cm²	1100 m³/h
Bomba Jockey	02	10 kgf/cm²	20 m³/h

O tanque estratégico de diesel está descrito no item 2.3.1.

O Sistema de Combate a Incêndio por Água Salgada alimenta os hidrantes, dilúvio e rede de espuma.

- Rede de Hidrantes:

Os hidrantes são do tipo vertical providos de duas saídas do tipo storz instalados em locais estratégicos. Ao lado de cada hidrante existe um armário, contendo equipamentos de combate a incêndio, como: mangueiras, chaves, esguicho, etc.

A localização e o tipo de hidrante são apresentados na tabela abaixo:

Localização	2 ½" X 2	1 ½" X 1
Main Deck	11	5
Spider Deck	4	-
Ponton Deck	2	-
Tween Deck	3	5
Heli Deck / Mesanino	1	-
Upper Deck (37500)	9	2
Upper Deck (43500)	1	2

- Sistema de Combate a Incêndio por Dilúvio:

A finalidade desse sistema é resfriar os equipamentos adjacentes a alguma área onde esteja ocorrendo um incêndio, mantendo a integridade dos equipamentos e impedindo que o fogo se propague e se torne incontrolável.

Áreas cobertas pelo Sistema de Combate a Incêndio por Dilúvio:

ADV	Descrição
542027	Spider Deck
542028	Unidade de glicol, de injeção química, separador de teste, sump de glicol e permutador de teste
542029	Vaso do flare, Unidade de injeção de produto químico
542030	Bomba de Incêndio B - BB
542031	Bomba de Incêndio A - BE
542032	Bombas de Transf., Tanques de óleo lubrificante dos TC's
542033	Tanque de óleo lubrificante C - BB
542034	Tanque de óleo lubrificante A e B - BE
542021	TC-C, gás separado, compressor booster, Surge Tank, Fornos e Tq. Diesel - guindaste
542022	TC-B, Skimmer, gás combustível TG-C e degaseificador
542023	TC-A e Pipe rack Central
542024	Torre e Surge de glicol, Permutadores do glicol e TO's A/B
542025	Separadores A e B, Permutador de gás separado dos TC'
542026	Pipe rack, Desaeradora, Gás combustível

- Sistema Fixo de Combate a Incêndio por Espuma:

A plataforma é equipada com canhões fixos de espuma de acionamento manual no local e canhões de acionamento remoto da sala de controle central, que cobrem a área de carga, convés principal e heliponto.

Este sistema é formado pelos equipamentos listados abaixo:

Equipamento	Quantidade	Pressão	Capacidade
Tanque de Armazenamento de Concentrado de Espuma	01	Atmosférica	1,0 m3
Canhões	03	12 kgf/cm²	-

O tanque de armazenamento de líquido gerador de espuma está descrito no item 2.3.1.

- Sistema Fixo de Combate a Incêndio por Water Mist:

A P-26 não possui Sistema Fixo de Combate a Incêndio por Water Mist.

2.6.3.2 - Sistema Fixo de Combate a Incêndio por Gás Inerte

- Sistema com CO_2

Sistema fixo de combate a incêndio por CO_2 tem como objetivo detectar e extinguir o fogo através de inundação total por gás na área efetiva de risco. Isto ocorre, pois o CO_2 diminui a concentração de oxigênio do ambiente fazendo com que o fogo não possa mais realizar o trabalho de combustão.

Sistema fixo de extinção de incêndio por CO_2 é composto por cilindros de armazenamento, válvula de abertura rápida, tubos coletores, acionadores, bicos nebulizadores e detectores. O sistema é formado por duas baterias, uma principal e outra reserva, contendo 41 cilindros cada.

Este sistema cobre as seguintes áreas:

Área de Cobertura
Sala do gerador de emergência
Sala de painéis essenciais
Sala de telecomunicações
Sala de bombas (Pontoon BE)
Sala de bombas (Pontoon BB)
Sala de bombas de água de injeção
Sala dos compressores de ar e bombas de água quente
Sala de painéis normais
Sala de controle do gerador de emergência
Sala dos carregadores de baterias TC's
Sala dos carregadores de baterias TG's
Sala de painéis normais - Acomodações
Paiol de tintas
Sala de controle
Sala de painéis essenciais - Acomodações

Sala de rádio

As turbinas (TC's e TG's) dispõem de um dispositivo exclusivo para combate a incêndio com CO2. A cozinha e o compressor booster (UC-122302) também dispõem de dispositivo exclusivo.

- Sistema com Halon

A P-26 não possui Sistema com Halon de Combate a Incêndio.

2.6.3.3 - Equipamentos Portáteis de Extinção de Incêndio

A plataforma conta ainda com equipamentos portáteis de extinção de incêndio composto pelos seguintes equipamentos:

Descrição	Quant.	Capacidade
Extintor de incêndio PQS ou ABC	73	12 kg
Extintor de incêndio de CO2	69	6 kg
Extintor Móvel de Pó Químico	12	50 kg
Extintor Móvel de Espuma (CARRETA)	15	100 L
Extintor Móvel de CO2	1	10 kg

O sistema portátil de extinção de incêndio por CO_2 é composto por cilindros de armazenamento que são distribuídos de acordo com o potencial de risco de locais.

2.7 - SISTEMA DE MOVIMENTAÇAO DE CARGA E PESSOAL

2.7.1 - Movimentação de Carga

A movimentação de cargas é feita através de 02 guindastes que têm as seguintes características:

Localização	Capacidade	Tipo

Convés Superior (upper deck) a bombordo	Principal 30t	Hidráulico
Convés Superior (upper deck) a boreste	Principal 30t	Hidráulico

Em complemento, os guindastes de bombordo (BB) e boreste (BE) contam com o componente auxiliar para operação de movimentação de carga, a bola peso (ou moitão auxiliar) com capacidade de 5 toneladas.

2.7.2 - Movimentação de Pessoal

A movimentação de pessoal é feita preferencialmente por via aérea. A plataforma possui um heliponto localizado na proa, com capacidade máxima de 12 toneladas, que opera diariamente com a aeronave AW 139 (bimotor de médio porte com capacidade de transportar 12 passageiros, além do piloto e copiloto).

Caso necessário, a movimentação pode ser feita por via marítima com a utilização de cestas de transbordo através dos guindastes.

2.8 - SISTEMA DE COMUNICAÇAO

O sistema é composto de:

2.8.1 - Sistema de Telefonia

A plataforma possui uma unidade PBX instalada no Compartimento de Telecomunicações e unidades de telefones automáticos distribuídas por todas as salas da plataforma.

2.8.2 - Sistema de Endereçamento Público

A plataforma possui sistema de comunicação interna que utiliza intercomunicadores distribuídos pela instalação para veicular anúncios públicos, chamadas, mensagens de advertências e programas audíveis a todas as pessoas a bordo.

É composto de um "rack" instalado no Compartimento de

Telecomunicações. As informações públicas e as chamadas podem ser feitas através de estações de chamadas ou telefones automáticos (sistema de telefonia).

2.8.3 - Sistema de Comunicação de Rádio

A plataforma possui um transceptor com canais de frequência de rádio para assessorar as atividades operacionais, movimentação de carga, segurança, salvamento e comunicações entre a instalação e estações costeiras/ embarcações/ aeronaves.

O sistema é subdividido em dois outros sistemas e é composto de um GMDSS/console de rádio e outros transceptores.

Em casos de emergência, os grupos de ação utilizam rádios portáteis para comunicação, em freqüências diferentes, pré-definidas pelo Coordenador da emergência, de acordo com a função de cada grupo.

Os principais equipamentos do sistema são:

Item	Quantidade	Localização
INMARSAT (sistema de comunicação via satélite)	01	Sala de rádio
NAV5 GMDSS NAVTEX	01	Sala de rádio
VHF FM	02	Sala de rádio
Rádio VHF/DSC Marítimo acoplado ao Sailor VHF	02	Sala de rádio
Rádio Aeronáutico Freqüência 131.32 MHZ	01	Sala de rádio
MF/HF DSC	01	Sala de rádio
Rádio SSB DSC Furuno FS-2570 C	01	Sala de rádio
Radar Transponder	06	Sala de rádio
VHF FM portátil	10	Sala de rádio
EPIRB	01	Sala de rádio
Transceptor HB SSB	01	Sala de rádio
Rádio telefone VHF	01	Sala de rádio
Transceptor VHF AM	01	Sala de rádio

Radiobalizamento	01	Sala de rádio
Rádio para embarcação salva-vidas	01	P-26
Rádio farol do tipo TRON 1C em cada baleeira	01	P-26
Antena	01	P-26
Retificador para bateria	01	P-26
Barômetro	01	P-26

Nota: MF/HF/SSB-SMM controle remoto encontra-se instalado na Sala de Recepção e na Sala de Controle.

2.9 - SISTEMA DE GERAÇAO E DISTRIBUIÇAO DE ENERGIA ELETRICA

O sistema elétrico é composto de dois geradores de 1,0 MVA acionados por motores a diesel um em cada bordo da unidade no Upper Deck. A capacidade de cada gerador é de 0.8 MW que totalizam 1,6 MW de capacidade de geração de energia elétrica, suprindo todas as cargas da P-26 descritas no item 2.1.2. A plataforma dispõe de 2 moto-geradores de emergência a diesel de 800 KW cada, que entram em operação automaticamente nos casos de falta da geração principal.

A distribuição é feita através do barramento 07 em 480Vac que alimenta os demais barramentos, sendo três painéis em 4,16 KV e os demais de 480V.

Características dos principais equipamentos que compõem o sistema:

Equipamento	Quantidade	Potencia	Tensão	Frequencia	Fases	Consumo Combustível	Eficiência
Moto Gerador Principal	2	800 KW	480 V	60 Hz	3	175 L/h (diesel)	100%
Moto Gerador Emergência	2	800 KW	480 V	60 Hz	3	175 L/h (diesel)	100%

O tanque estratégico de diesel está descrito no item 2.3.1.

A unidade ainda é provida de conjuntos de baterias (no breaks estáticos) que garantem o funcionamento de alguns sistemas vitais para segurança da plataforma que não podem sofrer interrupção em sua alimentação quando da queda da geração principal e posterior entrada ou falta da geração de

emergência, tais como:

· detecção de gás e incêndio;
· combate a incêndio por água e CO2;
· parada de emergência;
· iluminação de emergência;
· luzes de auxilio a navegação;
· luzes de obstáculo aéreo;
· telecomunicações e intercomunicadores;
· alarme manual e automático visual e sonoro;
· painel de controle do gerador de emergência;
· painel de controle da bomba de incêndio;
· equipamentos que compõem o sistema de controle e intertravamento;
· equipamentos que compõem a ECOS;

O sistema de baterias é composto pelos seguintes equipamentos:

Equipamento	Quantidade	Capacidade	Tensão	Autonomia
Retificador CB-810001	2	800 A	24 V	10 h
Banco de baterias BT-810001	2	700 Ah	24 V	10 h
Retificador CB-810003	2	800 A	24 V	10 h
Banco de baterias BT-810003	2	550 Ah	24 V	10 h
Retificador CB-514001	2	300 A	125 V	10 h
Banco de baterias BT-514001	2	1200 Ah	125 V	10 h
Retificador CB-551001	1	100 A	48 V	10 h
Banco de baterias BT-551001	1	175 Ah	48 V	10 h
Retificador CB-514004	1	50 A	12 V	10 h
Banco de baterias BT-514004	4	75 Ah	12 V	10 h
Retificador CB-UC-122301	3	200 A	125 V	10 h
Banco de baterias BT-UC-122301	3	910 Ah	125 V	10 h
Retificador CB-GE-514001	2	200 A	125 V	10 h
Banco de baterias BT-GE-514001	2	910 Ah	125 V	10 h
UPS CB-810002	2	45 A	125 V	10 h
Banco de baterias BT-810002	2	60 Ah	125 V	10 h

UPS CB-514002	1	68 A	120 A	10 h
Banco de baterias BT-514002	1	100 Ah	220 V	10 h
UPS CB-514501	4	45 A	220 V	10 h
Banco de baterias BT-514501	4	80 Ah	216 V	10 h

3 - Descrição do Processo de Produção

3.1 - SISTEMA DE PRODUÇAO

O sistema de produção da instalação envolve uma estrutura submarina composta por poços produtores (de óleo e gás) e injetores (de água), linhas de fluxo do processo (produção, injeção de gás, injeção de água e umbilicais de controle) e por equipamentos submarinos (ANM - Árvores de Natal Molhadas dos poços). Dos poços interligados a unidade, nenhum poço é do reservatório do présal e nenhum é HTHP.

No que se refere ao método de elevação, os poços produtores da unidade operam por gás lift.

Cada poço está provido de sua árvore de natal molhada (ANM), operada pela plataforma através da Unidade Hidráulica.

As linhas de produção entre as ANM e a plataforma são independentes e conectadas à unidade através de risers fixados na sua estrutura. As colunas de produção e as ANM dispõem de elementos de controle e segurança. A instalação possui 3 poços sem DSSS.

Após os risers, as linhas de produção são então encaminhadas e conectadas aos três "Manifolds" (Produção "A", Produção "B" ou de Teste) instalados no convés. Neste trecho, a montante dos "Manifolds", está instalada em cada linha, uma válvula "choke" com o intuito de controlar a vazão de produção de cada poço.

Em cada linha de produção, próximas aos risers, estão instaladas SDV's para isolar a plataforma dos poços quando houver condições anormais de processo.

Atualmente, todos os poços produtores e injetores encontram-se fechados e prontos para pull-out. Assim como toda a planta de processamento de óleo e gás estão descomissionados conforme GM 3010.29-2019-0104.

3.1.1 - Controle e Segurança dos Poços

As ANM são equipamentos compostos por um conjunto de válvulas de proteção primária (W1, W2, M1 e M2) e acessórios que têm as seguintes funções:

- Controlar a produção de óleo e gás ou controlar a injeção de água em um poço;
- Permitir o acesso à coluna de produção;
- Permitir a injeção de gás pelo anular do poço, quando o sistema de elevação artificial por gas lift;
- Permitir a passagem de sinal elétrico de sensores de temperatura e pressão (PDG), instalados na parte inferior da coluna de produção para a UEP (Unidade Estacionária de Produção);
- Permitir a passagem de sinal elétrico de sensores de temperatura e pressão (TPT), instalados na própria ANM, para a plataforma.

As ANM's são constituídas de válvulas de proteção primárias hidráulicas (válvula mestra, válvula de pistoneio e válvula lateral), que objetivam o controle e segurança do poço, tanto para a produção quanto para o acesso ao anular. Adicionalmente, existe uma válvula de interligação da produção ao anular do poço.

As válvulas têm dimensões de 2 1/16" ou 4 1/16" e são do tipo gaveta, com sistema de fechamento em caso de falha, com classe de pressão de 5000 psi.

As válvulas de pistoneio de produção e anular, somente podem ser operadas pela sonda de completação ou em override por ROV, com bitola de chave específica.

As válvulas mestras e laterais, de produção e anular, e a válvula de interligação, são acionadas pela plataforma de produção através de umbilical hidráulico, e são fechadas na ausência de pressão hidráulica. Também possuem sistema backup de atuação em caso de falha das mangueiras, e sistema de override por ROV em caso de falha total do sistema hidráulico.

O dispositivo de segurança de sub-superfície (DSSS ou DHSV) consiste num dispositivo de segurança posicionado na coluna de produção, que possibilita um fechamento praticamente instantâneo da mesma, cessando o fluxo de óleo e/ou gás caso algum sério problema ou falha tenha ocorrido com os equipamentos de segurança de superfície.

Os DSSS têm dimensões de 3 1/12", 4 1/2" e 5 1/2" com classes de

pressões que variam de 5000 psi a 10000 psi.

Os DSSS são acionados pela plataforma de produção através de Linha Controle Hidráulica, e caso haja despressurização na linha a válvula se fecha interrompendo a produção do poço em caso de emergência. Sua atuação é motivada pelo acionamento do sistema de emergência, baixa pressão na linha de surgência, falta de suprimento hidráulico ou acionamento manual do operador.

3.1.2 - Sistema de Injeção

a) BCSS :

A P-26 não possui BCSS.

b) Gás lift :

A injeção de gás e método de elevação artificial de óleo consiste na injeção contínua de parte do gás comprimido pelos turbo-compressores. O gás é direcionado para o header de gás lift e injetado na linha de produção dos poços que não possuem adequada pressão de surgência. Sua vazão varia em função do tempo e das alterações das características inicias do poço.

Os principais componentes do sistema são:

- Header de gás lift com diâmetro de 4";
- Header de kick off com diâmetro de 4";
- Linhas de gás lift por poço com diâmetro de 2,4"e 5";

Estação de medição de vazão ANP única para todos os poços;

Os principais equipamentos deste sistema encontram-se descritos no item 3.3.

c) Gás :

A P-26 não possui injeção de gás no reservatório.

d) Água :

A injeção de água é o principal método para preservar a pressão no

reservatório. A água é captada no sistema de resfriamento, após os trocadores de calor, passa por filtros e o oxigênio dissolvido é retirado na desaeradora, para evitar o desenvolvimento de microorganismos e diminuir a corrosividade natural da água do mar.

A água, filtrada e desaerada, é injetada nos poços por meio de bombas que alimentam o manifold dos poços de injeção.

Os principais equipamentos do sistema são:

Equipamento	Quantidade	Pressão de Projeto	Pressão de Operação	Vazão
Filtro de Água salgada	04	7,89 kgf/cm²	3,25 kgf/cm²	1250 m³/h
Bomba Desaeradora	02	Sucção 3,25 kgf/cm² Descarga 4,08 kgf/cm²		1200 m³/h
Desaeradora	01	3,50 kgf/cm²	2,04 kgf/cm²	1200 m³/h
Bomba booster de Injeção de água	05	Sucção 0,72 kgf/cm² Descarga 40,31 kgf/cm²		200 m³/h
Filtro de Água de Injeção	08	40,31 kgf/cm²	27,81 kgf/cm²	333,3 m³/h
Bomba principal de Injeção de água	05	Sucção 40,31 kgf/cm² Descarga 148,84 kgf/cm²		200 m³/h

Atualmente, todos os poços injetores de água encontram-se fechados e prontos para pull-out. Assim como todos os equipamentos do Sistema de Injeção de Água estão descomissionados conforme GM 3010.29-2019-0104.

3.2 - SISTEMA DE PROCESSAMENTO DE OLEO

A partir de cada Manifold, o óleo escoa através de 2 coletores de produção e 1 coletores de teste para seu respectivo trem de produção "A", "B" ou Separador de Teste.

O alinhamento para os Manifolds de Produção "A" e "B" é feito de forma a distribuir as vazões, buscando manter 50% da produção em cada trem, os quais foram dimensionados para manter a performance de separação.

A planta de processo da P-26 é baseada em separadores horizontais (produção e atmosférico) e desidratadores (tratadores) eletrostáticos. A planta possui dois trens de produção, cada um contendo sequencialmente os permutadores (aquecedor água-óleo), separador de produção, tratador de óleo

e separador atmosférico (surge tank). A desestabilização de emulsões pela ação do calor é realizada pelos Aquecedores de Produção (água quente/óleo produzido).
É ainda injetado produto químico tipo desemulsificante a montante dos permutadores, a fim de auxiliar na desestabilização da emulsão.

O óleo separado segue para os Desidratadores Eletrostáticos onde é realizada a máxima separação de salinidade e conteúdo de água (BSW) presentes no mesmo. O óleo é então estabilizado nos Separadores Atmosféricos (onde são removidos traços de gás) seguindo diretamente para as bombas de exportação.

A planta de produção possui ainda um Separador de Teste (start-up well) precedido também por um Aquecedor. Este separador bifásico é utilizado nas operações de abertura ou verificação de vazão de um poço específico.

Os principais equipamentos do sistema são:

EQUIPAMENTO	TIPO	CAPACIDADE
Aquecedor de Produção	Casco e tubo	27,0 x 106 w
Separador de Produção	Horizontal	8.000 m3/dia
Aquecedor de Teste	Casco e tubo	8,17 x 106 w
Separador de Teste Start-up well	Horizontal	2.500 m3/dia
Tratador de Óleo	Desidratador Eletrostático	8.000 m3/dia
Separador Atmosférico	Horizontal	16.000 m3/dia

As pressões de operação do sistema de processamento são ajustadas em função do melhor desempenho dos equipamentos de acordo com a produção no momento. Por isso, sofrem variações. Elas são balizadas pela pressão de projeto que, por sua vez, são referência para a pressão de abertura das válvulas de segurança (vide tabela abaixo).

Equipamento	Vol.	Temp.	Pressão		
			Projeto	Operação	Abertura das válvulas de segurança
Aquecedor de óleo	-	90º C	15,5 kgf/cm² (óleo)	10,5 kgf/cm² (óleo)	14,0 kgf/cm² (óleo)*

			19,8 kgf/cm² (água)	17,8 kgf/cm² (água)	12,0 kgf/cm² (água)**
Separador de Produção	188 m³	90º C	17,6 kgf/cm²	8,7 kgf/cm²	14,0 kgf/cm²
Tratador Eletrostático	260 m³	90º C	17,6 kgf/cm²	8,7 kgf/cm²	14,0 kgf/cm²
Separador Atmosférico	270 m³	90º C	4,50 kgf/cm²	1,4 kgf/cm²	3,47 kgf/cm
Aquecedor de Teste	-	90º C	15,5 kgf/cm²	10,5 kgf/cm²	14,0 kgf/cm²
Separador de Teste Start-up well	32,5 m³	90º C	14,0 kgf/cm²	9,0 kgf/cm²	14,0 kgf/cm²

* PSV que protege o sistema em que o equipamento está inserido.

**A proteção do lado água do Aquecedor de óleo é feita pela PSV-512503/04, instalada no V-512501 (Vaso de Expansão de Água Quente). O Sistema de Água Quente é um circuito fechado e a diferença entre a pressão de operação e a pressão a abertura da PSV se deve a diferença de elevação (cota) de cada equipamento.

Toda a planta de processamento de óleo foi descomissionada conforme GM 3010.29-2019-0104.

3.3 - SISTEMA DE PROCESSAMENTO DE GAS

O processamento do gás consiste na separação, depuração, compressão e desidratação. O processamento do gás de alta pressão consiste no direcionamento para unidades de compressão (três) sendo que cada uma é baseada em três compressores (cada compressor correspondendo a um estágio de compressão). Duas unidades são projetadas para processar uma vazão total máxima de 1.000.000 Nm3 de gás por dia (a 20ºC e 170 bar), cada uma, e a terceira é projetada para processar 1.650.000 Nm3 de gás por dia.

Em cada unidade de compressão, trocadores de calor (coolers) resfriam o gás entre os estágios de compressão do gás através de um sistema fechado de água doce. Após o terceiro estágio de compressão, o gás é enviado à unidade de desidratação para remoção de água. Esta unidade consiste de uma coluna de absorção à base de TEG (trietileno glicol - substância com caráter hidrófilo) além de um sistema de regeneração de TEG. A remoção de água visa evitar corrosão das paredes dos gasodutos e demais equipamentos além de evitar a formação futura de hidratos em gasodutos e poços.

Após a desidratação o gás é enviado para o sistema de gás combustível,

sistema de injeção de gás lift e finalmente exportado para P-35.

No sistema de gás combustível, o gás é fornecido em duas especificações: alta pressão (25 bar) e baixa pressão (3,5 bar). Os principais consumidores de gás combustível de alta pressão são basicamente as turbomáquinas. O gás de baixa pressão é fornecido para os fornos, piloto da tocha, torre desaeradora e vasos da unidade de desidratação de gás.

O gás removido nos separadores atmosféricos (gás de baixa pressão) é enviado ao sistema de compressão auxiliar (booster) onde sofrerá resfriamento visando remoção de condensado e compressão. Por fim, esta corrente de gás é direcionada para o sistema de compressão principal de três estágios descrito anteriormente. O sistema de compressão booster trata ainda o gás de saída da coluna desaeradora (tratamento de água para injeção).

As pressões de operação do sistema de processamento de gás são ajustadas em função do melhor desempenho dos equipamentos de acordo com a produção no momento. Por isso, sofrem variações. Elas são balizadas pela pressão de projeto que, por sua vez, são referência para a pressão de abertura das válvulas de segurança.

Os principais equipamentos do sistema são:

Equipamento	Volume	Pressão		
		Projeto	Operação	Abertura das válvulas de segurança
Vaso de Gás Separador	5,65m³	1370 kPa	850 kPa	1320 kPa
Resfriador de entrada do Vaso de Gás Separado	-	700 kPa (tubo) 1370 kPa (casco)	138 kPa (tubo) 883 kPa (casco)	700 kPa (tubo) 1320 kPa (casco)*
Vaso Separador do 1º Estágio de Compressão	3.7 m³	1800 kPa	850 kPa (óleo)	1730 kPa
Compressor	-	18681kPa		-
Resfriador de descarga do Compressor (3º estágio)	-	1200 Kpa (tubo) 20400 kPa (casco)	306 Kpa (tubo) 17000 kPa (casco)	1177 kPa (tubo) 19613 kPa (casco)

* PSV que protege o sistema em que o equipamento está inserido.

Atualmente, todos os equipamentos do Sistema de processamento de gás estão descomissionados conforme GM 3010.29-2019-0104.

3.4 - SISTEMA DE EXPORTAÇÃO DO ÓLEO E GÁS

O óleo tratado pela P-26 é exportado a uma pressão entre 36kgf/cm2 e 110 Kgf/cm2 (operação e projeto) através de um oleoduto misto (trecho de duto flexível e rígido) de 10" com 12km cada até a P-33.

A P-26 recebe, através de gasodutos, o gás proveniente das plataformas P-37 e P-53 e a transferência deste gás, somada ao gás excedente da própria P-26, é realizada através do gasoduto que liga P-26 à P-35.

O gás separado pela P-26 é exportado a uma pressão entre 16000kpa e 17500kPa (operação e projeto) através de um gasoduto misto (trecho de duto flexível e rígido) de 10" para a P-35.

Os principais equipamentos que compõem o sistema estão descritos na tabela abaixo:

Equipamento	Quant.	Vazão / Capacidade	Pressão	
			Projeto	Operação
Bomba de exportação de Óleo	05	175 m³/h	112 Kgf/cm²	70 Kgf/cm²
Turbo Compressor	02	1.000.000 Nm³/dia	170 Kgf/cm²	158 Kgf/cm²
Turbo Compressor	01	1.650.000 Nm³/dia	170 Kgf/cm²	158 Kgf/cm²

Atualmente, os equipamentos do Sistema de Exportação de óleo e Gás encontram-se descomissionados conforme GM 3010.29-2019-0104.

3.5 - SISTEMA DE GÁS COMBUSTÍVEL

Parte do gás natural proveniente da separação, posteriormente comprimido e desidratado é submetido a um condicionamento visando especificá-lo de acordo com os requisitos do combustível para as turbinas quanto ao ponto de orvalho de hidrocarbonetos: 25 °C abaixo da temperatura normal de utilização.

É necessário ajustar o seu ponto de orvalho, de forma que não ocorra condensação nas linhas de alimentação das turbo máquinas, o que prejudicaria a performance destes equipamentos.

O processo de especificação do ponto de orvalho consiste na condensação da fração mais pesada do gás, pelo resfriamento devido à expansão em uma válvula redutora de pressão.

O sistema de gás combustível tem capacidade de processamento de 720.000Nm3/dia a 40ºC e 1599 kPa, com temperatura do ponto de orvalho do gás combustível de 20 ºC, e com temperatura adotada para distribuição de gás a alta pressão de acima de 25 ºC.

O gás e fornecido em duas especificações: alta pressão (2400 kPa a 25 ºC) e baixa pressão (250 kPa abs a 25 ºC).

Os principais consumidores de gás combustível de alta pressão são basicamente as turbomáquinas. O gás de baixa pressão é fornecido para o desaerador (tratamento de água para injeção), para a chama piloto do flare e fornos, água quente.

As pressões de operação do sistema de gás combustível são ajustadas em função do melhor desempenho dos equipamentos de acordo com a produção no momento. Por isso, sofrem variações. Elas são balizadas pela pressão de projeto que, por sua vez, são referência para a pressão de abertura das válvulas de segurança.

Os principais equipamentos do sistema são:

Equipamento	Volume	Pressão		
		Projeto	Operação	Abertura das válvulas de segurança
Vaso depurador	8,6 m³	2782 kPa	2487 kPa	2775 kPa
Permutador Gás-Gás	-	2782 kPa (casco) 7666 kPa (tubo)	2587 kPa (casco) 6685 kPa (tubo)	2775 kPa (casco) 7666 kPa (tubo)
Aquecedor Gás Alta Pressão	-	19600 Kpa (tubo) 1943 kPa (casco	17468 Kpa (tubo) 1695 kPa (casco	19600 kPa (tubo) 1943 kPa (casco)

Atualmente, os equipamentos do Sistema de gás combustível encontram-se descomissionados conforme GM 3010.29-2019-0104.

3.6 - SISTEMA DE AUTOMAÇAO, CONTROLE E PARADA DE EMERGENCIA

3.6.1 - Sistema de Automação e Controle

A automação e controle da planta de processo e embarcação e feita pela

Estação Central de Operação e Supervisão - ECOS. A ECOS permite o monitoramento e inspeção da produção offshore na Sala de Controle Central. Isso é realizado através de uma tela/janela, que mostra gráficos de alta resolução, "flow sheets" e outras estruturas fixas de desenho. Os componentes principais destas estruturas fixas (equipamento e instrumentos) são animados, exibindo-se a troca de estado como a abertura e o fechamento de válvulas, partida de bombas, etc. As telas/janelas descrevem as Plantas de Processo e Utilidades Navais. O Programa Supervisório da ECOS fornece uma Interface de Homem-Máquina (MMI) para processos/utilidades, sistemas elétricos, de lastro e de segurança de toda a instalação.

Os sistemas principais desta arquitetura para aquisição e controle de dados e funções de intertravamento estão listados a seguir:

· **ECOS - Estação Central de Operação e Supervisão:** é um recurso de hardware/software especializado no processo e visualização de dados de campo em um formato satisfatório, deixando para outros sistemas a obrigação de coletar os dados. Estes sistemas em geral têm grande capacidade de interface com o campo, não só para dados recebidos, mas também para comandos que atuam dispositivos. Assim, é possível de uma Estação de trabalho ECOS, enviar comandos para o campo atuando os dispositivos.

· **CIS - Sistema de Controle e Intertravamento:** Baseia-se na utilização de Controladores Lógicos Programáveis (PLCs) para execução de funções de controle e intertravamento. É constituído pelo Painel de Controle e Intertravamento de Segurança, localizado na Sala de Controle Central e Unidades Terminais Remotas (RTUs), localizadas em pontos ao longo da Plataforma.

· **PAS - Sistema de Automação de Pacotes:** O PAS refere-se às unidades autônomas do processo/embarcação que dispõem de Painéis Locais e são interligadas ao Sistema de Automação via rede de comunicação de dados.

retenção. O controle das suas operações é feito através de um umbilical hidráulico ligado a plataforma. Sua utilização possibilita a manutenção do trecho horizontal (flowline) do gasoduto de exportação e do riser de maneira independente. As válvulas do PLET impedem o retorno do gás em caso de rompimento do riser.

Tanto as linhas dos poços que chegam à plataforma quanto as linhas de exportação são equipadas com válvulas de bloqueio automático do tipo SDV. Em casos de anormalidades essas válvulas fecham conforme procedimento de parada de emergência descrito no item 3.6.

O Anexo 2 mostra o diagrama unifilar de interligação da P-26 com outras instalações.

Os poços produtores e injetores encontram-se fechados e prontos para pull-out. Assim os gasodutos e oleodutos ligados a unidade de P-26 foram descomissionados conforme GM 3010.29-2019-0104 e aguardam corte de suas linhas.

5 - Descrição do Processo de Perfuração

5.1 - SISTEMA DE PERFURAÇAO

5.2 - SISTEMA DE CONTROLE DE POÇO

5.3 - SISTEMA DE CONTROLE, AUTOMAÇAO E PARADA DE EMERGENCIA

6 - Glossário	
ANM - Árvore de Natal Molhada	Equipamento constituído por um conjunto de válvulas tipo gaveta, um conjunto de linhas de fluxo e um sistema de controle interligado a um painel localizado na plataforma, que é acoplado à cabeça do poço, com o objetivo de controlar e permitir a produção de fluidos
ANP	Agência Nacional do Petróleo, Gás Natural e Biocombustíveis
Árvore de Natal	Equipamento mecânico instalado na cabeça-de-poço (wellhead), composto, basicamente, de conectores e válvulas, com a finalidade de interligar as tubulações internas e externas ao poço, e de permitir o controle do fluxo de fluidos através dele. Pode ser chamada de árvore de natal molhada, usada em poços submarinos e árvore de natal seca, usada em poços de completação seca.
BB	Bombordo - Bordo esquerdo da embarcação, olhando-se de ré para vante.
BE	Boreste - Bordo à direita da embarcação, olhando-se de ré para vante.
BSW	Basic Sediments and Water. Teor de sedimentos e água presente no óleo produzido.
Calado	Distância vertical entre a superfície da água e a parte mais inferior da embarcação naquele ponto, geralmente medido a vante, meia-nau e a ré.
CIS	Baseia-se na utilização de Controladores Lógicos Programáveis (PLCs) para execução de funções de controle e intertravamento.
Decks	(Convés) - Qualquer área de trabalho em estruturas

	oceânicas (main deck, upper deck, cellar deck, drilling deck, etc.).
ECOS	Recurso de hardware/software especializado no processo e visualização de dados de campo em um formato satisfatório, deixando para outros sistemas a obrigação de coletar os dados.
Formação	Extenso pacote sedimentar com características litológicas semelhantes.
Gás lift	(Injeção de Gás) - Método de elevação artificial de petróleo compreendendo, basicamente, a injeção de gás no fluido produzido, dentro ou fora do poço, com o objetivo de viabilizar ou aumentar a produção.
GMDSS	Global Maritime Distress and Safety
Header	Tubo coletor de fluido.
Heliponto	(helideck) - Área demarcada, destinada ao pouso e decolagem de helicópteros.
IBAMA	Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renovaveis
Lâmina d´água	(LDA) Distância vertical entre a superfície e o fundo do mar.
Mangote	Tubulação flexível de transferência (off-loading) de óleo para o navio aliviador ou para um FSO.
Manifold	Equipamento localizado no leito oceânico cujo objetivo é a equalização das diferentes pressões dos fluxos de cada um dos poços, antes de enviá-los às linhas de produção. Da mesma forma esse equipamento controla a vazão dos poços.
MBL	Valor Mínimo da Carga de Ruptura do material.
Override	Atuação Externa - Atuação mecânica externa de um

	equipamento submarino por mergulhador ou veículo de operação submarina, quando não está disponível seu sistema remoto de atuação.
PAS	Unidades autônomas do processo/embarcação que dispõem de Painéis Locais e são interligadasao Sistema de Automação via rede de comunicação de dados.
PLEM	Pipeline End Manifold - Coletor de Extremidade de Duto Submarino - Conjunto de tubulações e válvulas montado sobre quadro estrutural metálico, instalado na extremidade submarina de um ou mais dutos submarinos.
PLET	Pipeline End Terminal - Extremidade de Duto com Conexão Vertical - Conexão vertical montada sobre quadro estrutural metálico instalado na extremidade submarina de um ou mais dutos submarinos.
Poço surgente	Tipo de poço que promove a elevação natural dos fluidos (óleo/água/gás) desde o reservatório até as facilidades da produção.
QAV	Querosene de aviação.
Riser	Tubulação que liga, através do turret, o FPSO ao sistema submarino. Os risers podem ser de produção ou de injeção. Os risers de produção escoam os fluidos da formação para a FPSO, já os risers de injeção são utilizados para inserir gás ou água de forma a otimizar a produção.
SDV	Shut Down Valve: Elemento final de controle automático acionado pelo sistema de parada de emergência cuja função é bloquear determinado circuito de processo e equipamento que contenha

	hidrocarboneto sob pressão.
Válvula Choke	Válvula de regulagem, utilizada para controlar a vazão do poço.
Válvula M1	Válvula Master 1 da àrvore de Natal
Válvula M2	Válvula Master 2 da àrvore de Natal
Válvula W1	Válvula Wing 1 da àrvore de Natal
Válvula W2	Válvula Wing 2 da àrvore de Natal
WAG	Water alternate Gas

ANEXO 1 - DIAGRAMA DE ANCORAGEM

ANEXO 2 - DIAGRAMA DE INTERLIGAÇÃO

RELAÇÃO DE BATERIAS										
FABRICANTE	LÓRICA	MOURA	MOURA	POWER SAFE	FULGURIS	FULGURIS	FULGURIS	FULGURIS	MOURA	MOURA
MODELO	4TM 25-3	2MO 100	4MO 200	2OPzV 100	9 TFE-300-2V	15 TFE-500-2V	21TFE-1250	25TFE-750-2V	8MO 750	13 TFE-750-2V
TAG DOS BANCOS	QUANTIDADE DE ELEMENTOS POR BANCO									
BANCO DESATIVADO	30									
BT-514501A		36								
BT-514501B	36									
BT-514501C		36								
BT-514501D	36									
BT-551001			24							
BT-551002			24							
BT-514002				108						
BT-810002A				108						
BT-810002B				108						
BT-551003					12					
BT-551004						24				
BT-514001 A/B							126			
BT-810001A								13		
BT-810001B									13	
BT-810003 A/B										26
TOTAL POR TIPO	102	72	48	324	12	24	126	13	13	26
TOTAL	760 ELEMENTOS									

Localização dos bancos baterias	
sala de baterias 1	
sala de baterias 2	