



Environmental Summary Project

(The project will support the Liza Destiny / Liza Unity Development - Guyana)

EDITION 01: REVISION 1

Name of the Company: Tidewater Marine International, Inc. – Guyana Branch

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Date: 28 March 2023

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Liza Destiny / Liza Unity Development - Project Scope

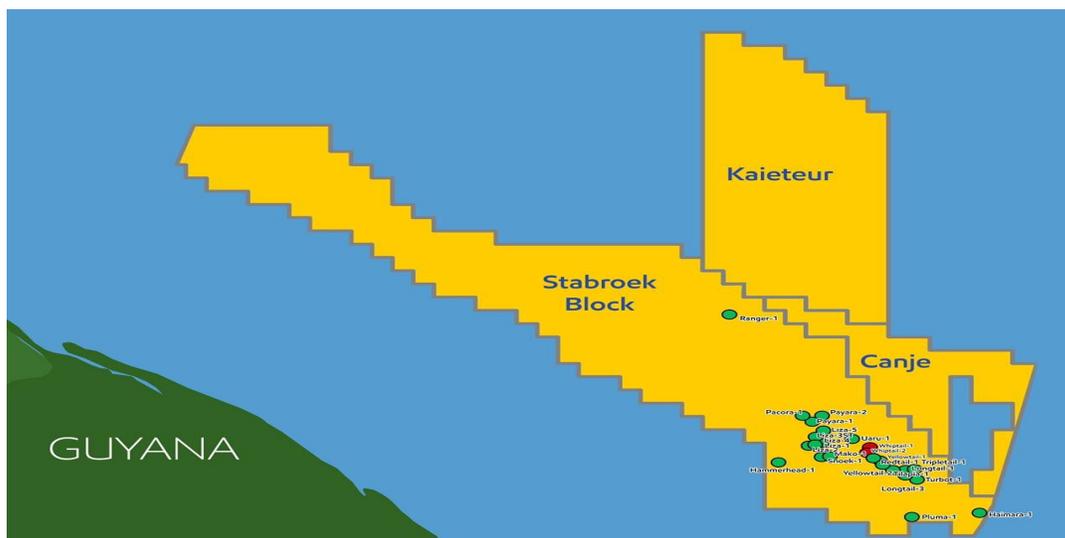
The project involves drilling an oil and gas exploration well in the Stabroek Block. The proposed well is approximately 200 km from Port Georgetown in a North Easterly direction in the Atlantic Ocean, which cover almost 27,000 square kilometers. The Project site is located in the Guyana-Suriname Basin, a passive, continental-margin-style sedimentary basin. The Guyana-Suriname Basin formed as Africa separated from South America during the breakup of Pangea/Gondwana. Bunkering services are scheduled up for the rigs listed below.

Location – Coordinate

No.	Latitude (N)	Longitude (W)	Remarks
1*	8° 0' 38.808"N	056° 59' 31.164"W	WGS84 (Zone 21)
2*	8° 0' 35.604"N	056° 54' 51.0114"W	WGS84 (Zone 21)
3*	08° 04.5'N	057° 01.5' W	WGS84 (Zone 21)
4*	08° 46.548' N	057° 33.546' W	WGS84 (Zone 21)

Location and Rigs -Gerard Tide will be supporting:

Liza Destiny Liza Development	8° 0' 38.808"N / 056° 59' 31.164"W
Liza Unity Liza Development	8° 0' 35.604"N / 056° 54' 51.0114"W
Stena Carron Fangtooh SE 1	08° 04.5'N / 057° 01.5' W
Stena DrillMax Tarpon 1A	08° 46.548' N / 057° 33.546' W
Noble Don Taylor PY_2i1	08° 07' 17.6"N / 056° 59' 41.9"W
Noble Sam Croft PC_1i1	08° 15' 22.2"N / 057° 00' 26.4"W
Noble Bob Douglas LIZ_5i5 SHZ	08° 11' 00.900"N / 056° 54' 53.488"W
Noble Tom Madden PY_2i6	08° 13' 53.7"N / 056° 58' 24.2"W





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POTENTIAL IMPACTS

Environmental Aspects

The company will continue to identify environmental aspects of operations that can be controlled or influenced. This information is documented on the Environmental Aspects form. The form is recognized as being a "live" document and will be subject to review and change as part of the continual improvement process.

This will identify the specific environmental aspects using general aspect categories. General aspect categories shall include but not be limited to, the following.

- Emissions to Air
- Releases to Water
- Use of Raw Materials
- Land Pollution
- Other Local & Community Environmental Issues
- Environmental Aspects of Health & Safety.

Lists of the aspects identified shall be maintained and shall be reviewed in the management reviews. Any new aspects identified will be added to the register and any aspects deemed to be no longer relevant should be deleted.

Determination of Significant Environmental Aspects

The review and evaluation of the aspects identified shall determine their significance using the criteria below. Where a new aspect is incorporated into the lists of aspects, it shall be reviewed and evaluated to determine significance.

The environmental aspects of the company may be considered to be "significant" where the aspect:

- Is subject to relevant legislation, regulation, and / or other requirements. This will likely include aspects associated with processes and activities if: (1) environmental regulations or other requirements specify controls and conditions, (2) information must be provided to outside authorities, and/or, (3) there are or may be periodic inspections or enforcements by these authorities.
- Is subject to a potential accidental release (liquid, gas or dry powder) that is regulated or that could be of sufficient quantity to cause environmental concern. These aspects shall be managed and controlled through the continued use of existing procedures within the IMS.
- Is subject to a high environmental loading due to one or more of the following criteria
 - The *scale* of the impact on the environment
 - The *severity* of the impact on the environment
 - The *probability of occurrence*
 - The *duration of the impact*
 - The level of company *influence* over the impact
 - Concerns of *interested parties*
 - Effect on the *public image* of the company

The justification for significance and insignificance is documented on the Environmental Aspects and Impacts Register.

Environmental Aspects Evaluation



Vessel								
Activity	Environmental Aspect	Environmental Impact	Condition			Frequency	Severity	Impact
			Normal	Abnormal	Emergency			
Crew change	Taxi and Buses	Pollution to land, CO2	X			2	3	6
	Trains	Pollution to land, CO2	X			1	3	3
	Boats	Pollution to land, CO2	X			1	2	2
	Airplanes	Pollution to land, CO2	X			3	3	9
Running Engines	Lubricating Oil	Use of non-renewable natural resources. Pollution to air	X			3	2	6
	Sludge	Pollution to land	X			2	2	4
	Fuel Oil	Use of non-renewable natural resources. CO2,NOX,SOX. Global warming, Eutrophication, Acidification, Ozone/smog formation	X			3	6	18
	Emergency Generator	Use of non-renewable natural resources. Pollution to air			X	1	10	10
Maintenance	Paint	Pollution to the marine environment	X			3	2	6
	Antifouling	Pollution of the marine environment. Toxic and hormone disrupting effects on marine organisms	X			2	3	6
	Thinner	Pollution to the marine environment	X			2	2	4
	Detergents	Pollution to sea	X			2	2	4
	Refrigerant Loss	Pollution to sea		X		1	3	3
	Vessel Operation	Bilge Water	Pollution to land/sea	X			3	1
Black Water		Pollution to land/sea	X			3	1	3
Grey Water		Pollution to land/sea	X			3	1	3
Ballast Water		Introduction of invasive species to ecosystems thus posing a threat to biodiversity	X			1	3	3
Waste - Food		Pollution to sea,air or land	X			3	1	3
Waste - Plastic		Pollution to air or land	X			3	3	9
Waste - Paper		Pollution to air or land	X			3	2	6
Waste - Woodwork		Pollution to air or land	X			1	2	2
Waste - Special Waste		Pollution to land	X			1	6	6
Freon Gas		Pollution to air		X		1	2	2
Bunkering	Oil Spill	Pollution of the marine environment. Toxic effects on marine organisms		X		1	6	6
Cargo Handling	Cargo Spill	Pollution of the marine environment. Toxic effects on marine organisms		X		1	6	6
Unsafe Operation and/o	Fire	Pollution of the marine environment. Toxic effects on marine organisms			X	1	10	10
Unsafe Operation	Accidental discharges of fuel and/or cargo	Pollution of toxic substances to air and marine environment			X	1	10	10

Office								
Activity	Environmental Aspect	Environmental Impact	Condition			Frequency	Severity	Impact
			Normal	Abnormal	Emergency			
Daily work	Electricity	Pollution to sea, air and land. CO2	X			3	3	9
	Paper Usage	Pollution to sea, air and land	X			3	2	6
	Printer Cartridges	Pollution to sea, air and land. Made out of plastic	X			3	2	6
	Waste	Pollution to land.	X			2	2	4
Travelling	Taxi and busses	Pollution to land, CO2	X			1	3	3
	Trains	Pollution to land, CO2	X			1	3	3
	Boats	Pollution to land, CO2	X			1	2	2
	Airplanes	Pollution to land, CO2	X			2	3	6
Unsafe Operation and/o	Fire	Pollution to air			X	1	10	10



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Risk and Opportunities

The company has established functions for identifying risks to the organization, how these risks are reviewed, monitored, and subsequently identifying opportunities to the organization. These functions are established to help assure that the management system can achieve its intended results, enhance desirable effects, prevent or reduce undesired effects, and identify opportunities for improvement.

These risks form part of the company's ongoing requirements for onshore management of offshore support vessels. The company has categorized these risks into internal and external, and are to be reviewed annually as part of the annual management review. Opportunities for improvement, including commercial and safety, as well as requirements for interested parties, are to be discussed and included in the Management Review, and implemented into the IMS if deemed of value to the organization. Opportunities for improvement can also be identified during Fleet Performance Review meetings, and included in the action tracker.

Interested Parties	Needs & Expectations	Objective	Priority
Clients	Expect the Company to deliver services according to agreed contract. Comply with industry guidance and regulations, with a focus on Safety and Environmental compliance.	High focus on safe, ecological, and sustainable operations. Compliance with industry best practice, avoid incidents including crew injury and environmental.	High
Vessel owners, where vessels are managed by Tidewater	Operate vessel in safe and efficient manner, whilst returning a profit on asset.	Secure stable revenue. High focus on safe, ecological, and sustainable operation. Maintaining vessel in compliance with Planned Maintenance to minimise environmental impact.	High
Shareholders	Profitability and growth.	Secure stable ownership and long-term market policy.	High
Employees Offshore/Onshore	Safe work environment, environmental awareness, development opportunities, and stable income.	Secure safety of crew and company assets. Environmental monitoring and objectives. Competence management and progression planning.	High
Authorities and Class	Compliance with regulations, waste management, reporting of environmental incidents as appropriate	Ensure compliance, secure safety of employees and operational integrity of vessels, ensure waste disposed of correctly. Ensure all environmental incidents are reported as necessary.	High
Office owners	Compliance of Office regulations, including segregation and disposal of waste	Ensure compliance, segregation and disposal of waste, utilise waste facility onsite for collection by approved Waste collector	Med



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Identified Risk	Objective	Threat	Risk Level	Functions to control
Customer requirements and expectations	Provide a safe and reliable service to the offshore Oil and Gas market, meeting and exceeding customer expectations.	Vessel performance below customer expectations	High	Foster a culture of continuous improvement and development within our business sector, ensuring through performance monitoring, inspections, audits and objectives, that all vessels meet and exceed customer expectations
Market knowledge	To ensure sound knowledge of current vessel rates, available tenders, and any other potential commercial opportunities	Loss of competitive advantage from being unaware of market trends, rates, and commercial opportunities.	High	Market research and analysis of trends. Benchmarking, Competitor analysis, and communication with shipbrokers.
Industry awareness	To ensure sound knowledge of industry expectations, best practice, and updates/changes.	Loss of competitive advantage, operating outwith industry expectations, not adhering to best practice or new legislation. Noncompliance with client and regulatory requirements	High	Attendance at industry forums, including Chamber of Shipping and Marine Safety Forum. Subscription to industry publications, and input into industry workgroups for best practice publications
Supplier Performance and developments	To ensure that the supply chain meets Tidewater requirements, its business objectives are met, and any issues that arise within the supply chain can be addressed without disruption to the Company's operations.	Risk to vessel operation and availability, including risk to crew. Impact on company reputation through malpractice of suppliers and agents.	High	Category management and Risk Assessment, contract management and performance monitoring, supplier verification process.

Operational Control, Monitoring and Measurement for vessels

Following review, and management approval, the following have been classed as the company's environmental aspects, these are included in the company's aspects and impacts register, further control procedures and measures are documented below.

GV 01 Emissions to atmosphere and consumption of fuel and lubricating oils

The information recorded within the impacts register shows that the company's most significant environmental aspect is the running of ship's machinery. The associated impacts of exhaust emissions and consumption of fuel and lubricating oils are inextricably linked, it is here that the company's most demanding challenges lie.



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The main focus will be on Fuel consumption and emissions of CO₂, SO₂ and NO_x

The Company operates a large fleet of multi engine platform supply and anchor handling vessels. The commercial operation of the vessels differs greatly to traditional shipping in that the company may have little control over the vessel's operational status when they are on charter to a client.

The company demands both efficient and economical use of machinery, clients demand economical engine speed at all times; however, there are times when "full speed" may be demanded by the Master, company or customer, this demand should be met, therefore fuel and lubricating oil consumption will rise accordingly as will associated emissions.

Vessels may spend a relatively short time on passage, yet could spend many hours or days working alongside an installation or towing a drilling rig.

All vessels have 2 engine's, some have 4 and all vessels have several thrusters. When operating within the 500meter exclusion zone of an installation, risk assessment and client procedure normally demands that all propulsion equipment be running, even if weather conditions would permit the shutting down of certain items of machinery, the clients and company's procedures would not. Fuel will be burned in this instance due to safety procedures and not operational requirements.

To ensure that fuel consumption is controlled and emissions kept to the minimum, the company has adopted the following strategy.

1. Compliance with current legislation
2. Provide technical and operational resources to ensure compliance with forthcoming legislation.
3. Embrace new technology, the company is prepared to continually change and upgrade equipment to meet new technology and regulatory requirements. This objective will take into account regulatory, operational and budgeting requirements. New build vessels are fitted with Selective Catalytic Reactors in the exhaust systems from the main engines to further reduce NO_x emissions.
4. Adoption of DNV "Clean Design" standard.
5. Recording of lubricating oil consumption for each power plant. This information will be a key indicator of machinery performance. This data is collated on by the chief engineer, it is monitored by the chief engineer and the vessels Operational Superintendent/Manager for abnormalities
6. Using a class approved Planned Maintenance System. Maintenance is both calendar and running hours based. Vibration analysis equipment carried and used onboard each vessel.
7. After taking into account the client's requirements, economic use of machinery at all times. The chief engineer has a responsibility to ensure efficient use of machinery at all times. The Master must ensure careful passage planning is carried out.
8. Use of fuel economiser equipment on certain vessels
9. Ensuring the correct grade of fuel loaded as per engine manufacturers design requirements. Current vessels run on Marine Gas Oil. Within the North Sea trading area, the sulphur content of MGO is < 0.1%
10. Environmental objectives will be maintained and measured to ensure environmental impact of vessels is minimized where possible, this includes;
 - o Planned maintenance records up to date and monitored. Vessel machinery and equipment to be maintained to manufactures recommendations to ensure efficient operation, and no loss of containment or potential impact on our environment.
 - o Fleet Co₂ Trend analysis. Co₂ figures from all vessels to be monitored against set base level for the fleet.



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GV02 Refrigerants

The company does not operate vessels fitted with R22 refrigerant

GV03 Halocarbons

Halocarbons have been removed from all vessels as halocarbon fire fighting equipment is now redundant.

GV 06 & 16 Paint, Solvents & Anti-fouling

The company will comply with the Solvent Emissions Directive (SED) and other national regulations as identified. The company will actively monitor the development of alternative environmentally friendly products, in particular low solvent and water based paints.

Paint and thinners are used in strict accordance with the Material Safety Data Sheets. Paint tins and paint-contaminated items are disposed of in a proper and legal manner. Reference Garbage Manual

The company will comply with the IMO International Convention on the Control of Harmful Anti-fouling systems on Ships.

It is the company's intention that no vessel will have a harmful anti-fouling system as its primary underwater topcoat. An approved coating will be applied as a barrier coating, or existing harmful anti-fouling coatings may be removed in their entirety

A record of vessels that are coated with Non-TBT products is maintained by the Operational Superintendents in the legislation tracking register

Any vessel identified as retaining a harmful anti-fouling system as its primary topcoat will have either a) a barrier coat applied or b) the substance removed. This will be carried out at the vessel's next scheduled dry-dock.

Where a vessel has a harmful, Anti-fouling substance partially, or wholly removed, the dry dock yard involved will be contracted to hold the authorisation for the removal, and disposal of said products. The Operational Superintendent attending the vessel will be responsible for ensuring this is carried out.

GV 08 Dry Bulk Particle Emissions to Atmosphere

The company recognises that the release of cement, barite, bentonite or other dry bulk cargo dust into the atmosphere could have a detrimental effect upon the environment. The company vessels will endeavour to comply with all applicable legislation that applies to the operating area of the vessel.

Procedures to control these emissions are set out in IMS documents

GV 11 & 13 Transfer of Fuel & Oil based products and Pumping Bilges

The company has identified that the circumstances of greatest risk of oil pollution during normal operations arise at those times when oil, in any of its forms, is either taken aboard, pumped ashore or offshore, or transferred within the ship, or during bilge pumping operations.

Accordingly, regulations together with well documented procedures incorporating checklists, have been developed and applied in an effort to achieve zero releases to water during these activities, and to ensure compliance with all relevant legislation including MARPOL 73/78 Annexe I. Compliance with company procedures is monitored through the audit process.

Any incident, which causes pollution, or near miss with the potential for pollution, is reported and investigated in accordance with international regulations and company procedures. Quantities of oil products released to water will be recorded in the tracking system. Any actions required from an incident investigation may be circulated to the fleet in the form of a Safety Flash.

Each vessel, carries spill containment equipment as required by the regulations.



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Spillage scenario drills are carried out at 3 monthly intervals.

Quantities of discharged bilge water is recorded within the Oil Record Book.

GV 12 Transfer and Management of Noxious Liquids in Bulk

The company will ensure full compliance with MARPOL Annexe II. Accordingly, regulations together with well documented procedures incorporating checklists, have been developed and applied in an effort to achieve zero releases to water during these activities, and to ensure compliance with all relevant legislation including MARPOL 73/78 Annexe II. Compliance with company procedures is monitored through the audit process.

Any incident, which causes pollution, or near miss with the potential for pollution, is reported and investigated in accordance with international regulations and company procedures. Quantities of oil products released to water will be recorded in the HSE tracking system. Any actions required from an incident investigation may be circulated to the fleet in the form of a Safety Flash.

Each vessel carries dangerous goods spill, and personal protective equipment.

Spillage scenario drills are carried out at 3 monthly intervals.

GV 14 Oil Releases to water from propulsion equipment

The company will ensure that the risk of pollution is minimised by ensuring that machinery is maintained as per Class, and company requirements. Vessels are dry-docked at required intervals and by the careful monitoring of lubricating oil consumption.

Both the Chief Engineer and the Operational Superintendent/Manager carefully monitor oil consumption.

GV 15 Spills From Collisions and Ruptured hulls etc

Emissions to air and water due to incidents involving collision, grounding and in worst case scenario total vessel loss, are very rare events. However, in the event of any of the aforementioned happening, the potential for significant pollution would be high.

The company ensures that the risk factor is kept to the minimum by ensuring compliance with the implicit procedures embedded within the IMS.

The company ensures compliance with STCW 95 and related international and national legislation. Training is carried out in all areas of navigation and bridge team management. Thorough investigation, including root cause and trend analysis into all Incidents and Near Miss situations. Ensures machinery is maintained to its optimum performance level (Approved Planned Maintenance system).

GV 17 Domestic Sewage Discharge

Tidewater acknowledges the potential impact upon the environment of raw sewage discharge and are therefore committed to meeting the standards required by MARPOL wherever practicable. New vessels are built to DNV "Clean Design" standard and are fitted with fully approved sewage treatment plants and comply with the requirements of MARPOL Annexe IV

A program is in place to ensure that existing vessels comply with forthcoming legislation.

All equipment and pipe work is maintained to the highest standards and storage tanks subject to regular inspections.



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Discharge of sewage is prohibited except when;

- The ship is discharging comminuted and disinfected sewage using a system approved by the administration, at a distance not less than 3nml from the nearest land, or when sewage is not comminuted or disinfected more than 12 nml from nearest land. The vessel must be en route and proceeding at no less than 4 knts. The discharge rate shall be approved by the administration.
- Or when sewage is discharged via an approved sewage treatment plant.

GV 18, 19 & 20 Garbage Management and waste Disposal

The company's main priority is to comply in full with international, national and local legislation. There is commitment at the highest level to reduce waste and introduce recycling facilities onboard the vessels. Recycling facilities are available at all main ports.

For successful implementation of the EMS, we as company must ensure that our employees buy into the environmental ethos. This will be achieved by ensuring that sensible and achievable objective and targets are set for the management of ships garbage. It is felt that compulsory fleetwide recycling programmes, regardless of the shore facilities, would have a serious negative impact on crew motivation e.g. the ships recycle waste only to put same into a shore skip that would not be subject to sorting.

The strategy to overcome this problem is detailed within the garbage management manual and the action programme.

Where an incinerator is fitted onboard, it must be used in compliance with manufacturer's guidance and MARPOL Annexe 6 regulation 16. Careful consideration should be given to recycling of waste before incineration.

Where a compactor is fitted onboard, it should be used, where possible, in line with our commitment to segregate and recycle waste

GV 21 Use of oil dispersant

Under development.

GV 22 Use of Chemicals

A variety of chemicals are used in all areas on company ships, mainly for cleaning and maintenance purposes. The company is aware of the potential impact of these products on both Occupational Health, Safety and the Environment and has taken action as follows:

1. Operates an approved list of chemical suppliers.
2. All chemicals supplied with Chemical safety data sheets
3. Onboard training given in the safe use of chemicals
4. Environmentally harmful waste chemicals are only disposed of ashore through a licensed contractor.

Treatment of Seawater Cooling System

Biocide treatment of seawater cooling systems is banned. All Tidewater vessels use an impressed current cathodic treatment system, which is fully approved.

GV 24 Transfer of Foreign Ballast

Not yet a legal requirement. However, the company will ensure the guidelines set out or applicable complied with where appropriate.

Each vessel will carry a Ballast Management Manual.



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Operational Control, Monitoring and Measurement for office and shore operations

GOS 01 Emissions from company cars

The ratio of company cars to employees is relatively low. Due to the nature of the business, the average mileage is very low, therefore fuel consumption is not considered significant. However, the exhaust emissions do add to the cumulative environmental impact.

The company has in place the following control measures to aid keeping emissions to the minimum

1. Company leased vehicles are renewed every 3 years, employees who are in receipt of a car allowance should own a car no more than 5 years old
2. Where practical mileage is limited to 15000 per annum
3. Servicing is part of the lease agreement however it is the responsibility of the individual driver to ensure the relevant servicing is carried out
4. Vehicle manufacturers are monitored for improvements to exhaust emission levels, consideration given to amending selection after taking budgeting requirements into account.

The Human Resources Manager holds the Company Car Policy, it is a controlled, confidential document, but can be produced for audit.

GOS 02 Emissions from Crew and staff transport

Combustion gas emissions from crew & staff transport by aeroplane, trains & hire cars

The Company currently aims to minimise the number and length of journeys for all sea staff joining and leaving Company vessels purely and simply because of the huge costs associated with these activities. That said, operational requirements of the Company dictate that crew have to travel to and from a vessel from a variety of places and it is not possible, nor practicable, to change this aspect of the business.

From an environmental point of view it would be preferable that all on- and off-signing sea staff would travel to and from the vessel by train or bus or if these methods are not available/suitable then by hire car or aeroplane.

From a cost-effective point of view the best method for managing crew changes is to utilise hire cars as much as possible.



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ENVIRONMENTAL MANAGEMENT

Garbage Management Plan

Purpose

The purpose is to ensure environmentally sound and cost-effective garbage handling in compliance with MARPOL Annex V.

Guidance

The garbage management plan consists of sections. The common information is provided as a document setting out the statutory requirements and obligations and how these are addressed. Referenced to the chapter are documents that are intended to be updated onboard with ship specific details which should be displayed on noticeboards and in key places such as bridge, galley, deck area, and engine room. Also referenced are documents that may be required for additional record keeping when receipts are not available.

Definition

Garbage means all kinds of victual, domestic and operational waste excluding fresh fish and parts thereof, generated during the normal operation of the ship and liable to be disposed of continuously or periodically.

ISO 14001 Statement

Tidewater management recognizes that the nature of their business and areas of operation of their ships places a particular responsibility upon them and recognizing that the disposal of waste ashore can also have an adverse environmental impact, are fully committed to minimizing the environmental impact of shipboard waste disposal and will therefore take action as detailed below and record relevant detail in the ISO 14001 Aspects and Impacts Register.

Regulations

The regulations for the Prevention of Pollution by Garbage from ships are contained in Annex V of MARPOL 73/78, amendments thereto.

Vessels must ensure compliance with area specific regulations at both National and local levels.

It should be noted that the Garbage Management Plan refers to ship-generated waste and not to waste transferred from platforms, rigs, or other vessels for transport to a shore reception facility.

The revised MARPOL Annex V prohibits the discharge of all types of garbage into the sea unless explicitly permitted under the Annex.

Training of Ship's crew

Ships' crews are required to be aware of, and familiar with, the management of garbage on board the vessel and must be aware of those areas designated as special areas, how garbage is to be handled on board, the segregation methods, collection and storage areas and their responsibilities.



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Garbage and Waste Reduction Initiatives

To minimize the generation of waste, provisioning practices should be reviewed with ship's suppliers in order to determine the optimum packaging for the products. From 2013 companies should encourage their suppliers to remove, reduce all packaging at an early stage to limit the generation of garbage on board the ship.

The following list is far from exhaustive, the environmental officer should inform the QHSE department of any new ideas or initiatives that are brought to their attention for inclusion in this manual. The HSE meetings should be used as platform to discuss garbage and waste issues.

Options include: -

- Re-usable packaging and use of containers. Disposable cups, utensils, dishes, towels, rags, and other convenience items should be limited and replaced by washable items where possible. Where disposable cups are utilized, they should be made of a recyclable material.
- Where practical options exist, provisions packaged in or made of materials other than disposable plastic should be selected to replenish ship's supplies unless a re-usable plastic alternative is available.
- The implementation of a `la carte menus should be encouraged. This has been proven to reduce the amount of food waste generated by a significant amount. It also has an economic benefit.
- Packaging materials generated in port should be disposed of at the port reception facility and not retained on board for discharge at sea. Wooden pallets should be returned to suppliers on delivery of goods. Oil drums should be returned to suppliers.
- Old mooring rope may be kept on board as bedding rope or distributed round the fleet for the same purpose.
- Minimize paper waste by reducing consumption i.e., double sided photo copying

Garbage Collection and Storage

Garbage collection information should be recorded on the garbage collection form referenced to this procedure. Once complete, it should be posted on the notice board and brought to the attention of all. It must include the following information:

Garbage collection points for; accommodation, engine room, galley, deck

Garbage type; paper, food, filters, paint pots etc.

Type of containers; waste bins, skip, bags etc.

Method of segregation / identification; clear / colored bags etc.

Removal of collected garbage; Indicate by hand, trolley crane and brief description of route.

The normal practices of good seamanship and housekeeping should be followed to ensure that the stored garbage is secured against any possibility of accidental discharge overboard.

Garbage Management Poster



Type of garbage	Ships outside special areas ³	Ships within special areas ³	Ships within 500 m of offshore platforms (≥12 nm)	Ships operating in polar waters
Food waste comminuted or ground	Discharge permitted ≥3 nm from the nearest land and en route	Discharge permitted ≥12 nm from the nearest land, en route	Discharge permitted ≥12 nm from the nearest land, (Marpol Annex V reg 5 sec 2)	Discharge permitted As far as practicable from areas of ice concentration exceeding 1/10, and always ≥12 nm from the nearest land, nearest ice-shelf, or nearest fast ice and en route
Food waste not comminuted or ground	Discharge permitted ≥12 nm from the nearest land and en route	Discharge prohibited	Discharge prohibited	Discharge prohibited
Cargo residues ¹ not contained in wash water	Discharge permitted ≥12 nm from the nearest land and en route	Discharge prohibited	Discharge prohibited	Discharge prohibited
Cargo residues ¹ contained in wash water	Discharge permitted ≥12 nm from the nearest land and en route	Discharge only permitted in specific circumstances² ≥12 nm from the nearest land and en route	Discharge prohibited	Discharge only permitted in specific circumstances² As far as practicable from areas of ice concentration exceeding 1/10, and always ≥12 nm from the nearest land, nearest ice-shelf, or nearest fast ice and en route
Cleaning agents and additives ¹ contained in cargo hold wash water	Discharge permitted	Discharge only permitted in specific circumstances² ≥12 nm from the nearest land and en route	Discharge prohibited	Discharge only permitted in specific circumstances² As far as practicable from areas of ice concentration exceeding 1/10, and always ≥12 nm from the nearest land, nearest ice-shelf, or nearest fast ice and en route
Cleaning agents and additives ¹ in deck and external surfaces wash water	Discharge permitted	Discharge permitted	Discharge prohibited	Discharge only permitted in specific circumstances² As far as practicable from areas of ice concentration exceeding 1/10, and always ≥12 nm from the nearest land, nearest ice-shelf, or nearest fast ice and en route
All other garbage including plastics, synthetic ropes, fishing gear, plastic garbage bags, incinerator ashes, clinkers, cooking oil, floating dunnage, lining and packing materials, paper, rags, glass, metal, e-waste, bottles, crockery and similar refuse	Discharge prohibited	Discharge prohibited	Discharge prohibited	Discharge prohibited
Mixed garbage	When garbage is mixed with or contaminated by other substances prohibited from discharge or having different discharge requirements, the more stringent requirements shall apply			

¹ These substances must not be harmful to the marine environment. ² According to regulation 6.1.2 of MARPOL Annex V/Polar Code Part II-A Chapter 5.2 the discharge shall only be allowed if: (a) both the port of departure and the next port of destination are within the special area/arctic waters and the ship will not transit outside the special area³/arctic waters between these ports; and (b) if no adequate reception facilities are available at those ports. ³ For an overview over Special Areas see attachment – MARPOL Annex V Special Area Chart". For exact coordinates of the Special Areas, see MARPOL Annex V Regulation 1.



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Bunkering

Purpose

Ensure that fuel loaded is compliant and that the loading and discharging of fuel oil is performed in a safe and controlled manner.

Instructions

Bunkering may be from a bunker barge, road tanker, another vessel, or quayside manifold.

The Chief Engineer (C/E) is responsible for safe loading of all bunkers and shall collaborate with the master and vessel management to ensure the efficient loading and use of bunkers. Close liaison between C/E and the OOW must be maintained when allocating tanks and the bunker sequence to ensure excessive stresses, lists or trims are not induced.

The checklist must be filled in for each bunkering operation, printed, signed and filed on board for at least 12 months. If possible, page one of the checklist shall be replaced by screenshots from tank control system showing content of relevant tanks prior to and after loading. These shall be printed and attached to the checklist whilst these provide an indication of the quantity onboard or loaded the fuel meter is generally a more accurate record.

Before Bunkering Commences:

- There should be a written agreement about the quality of fuel to be delivered by the supplier.
- The fuel being delivered is the right grade. Remember that a barge or road tanker may be divided into a number of compartments and that these compartments may hold different liquids.
- The shipper and receiver should confirm quantities to discharge and/or to be received.
- The loading rate/bunker plan must have been discussed and finalized with all persons involved in the operation.
- The Officer in Charge of loading should perform no other duties. If any diversions occur which require the officer's attention, then they should obtain assistance or cease loading operations.
- The overflow tank must be as empty as possible and this must be confirmed.
- The drip tray or overflow tray around the bunker connection is empty and oil tight.
- All scuppers are securely plugged.
- SOPEP/SMPEP kit shall be easily accessible ready for use.
- The supplier will be present during the whole bunkering and is provided with a hand-held radio for communication with vessel crew.
- It must be clearly understood among all persons involved in the operation when, and what signals are required to start and stop the operation.
- The connections are correctly made and that any necessary joints are in place and that any threaded connections or couplings are in good order.
- If a vessel hose is being used for the transfer it must be in good condition, inspected and certified within date as required.



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- There is sufficient space in the vessel's tanks to accommodate the fuel to be delivered.
- The Officer in Charge should check then double check all lines and valve settings. Ensuring all valves / connections in the product line being loaded are open, shut or blanked off as necessary.
- Unless the vessel utilizes a fully closed overflow system, then if possible maximum tank dips to be 85% capacity, and if it is necessary to load above this assistance will be obtained. This plan should be verified by either the Master or his designate.
- Under normal circumstances three vessel personnel are required for loading wet bulks including bunkers and under reduced manning situations such as layup this can be reduced to two personnel. There shall be a deck officer on duty either on the bridge, or on deck but in continuous communication with the engineer if loading fuel, or an engineer on duty. Where vessels are laid up, or on reduced manning, there must be an operator in the engine-room and a person on deck who is in direct contact with both the engine-room and shore supplier at all times.
- The officer in charge shall inform the deck officer of watch about the operation and ensure one member of ships complement is on deck throughout the operation. If there are any changes in watch keeping this shall be noted in the checklist under "comments".
- Particular care must be taken in the correct operation of valves. Remote-controlled valves should be checked for correct operation prior to, during, and after bunkering operations.
- The vessel should not be listing to the side where the hose is connected.

During Bunkering ensure that:

- Bunkering shall be commenced at a reduced rate until it is confirmed that the fuel is entering the correct tanks. Before increasing fuel rate, the crew member who is responsible for keeping watch at the bunker station shall check that there is pressure and no leaks on the hose, any lines on deck, or flanges. This shall again be checked after the rate has been increased.
- Neither the hose nor the vessel's system shall be over-pressurized or the dynamic rate of loading exceeded which can lead to an increasing pressure in the fuel tanks due to the restriction of the outflow of air displaced through the vents.
- Valves are promptly and properly operated and not closed against the flow.
- When readings are seen on the first tank, the responsible officer shall confirm this to both the supplier and bunker station.
- When loading the officer in charge, shall frequently compare the quantity received onboard or discharged with the shore or installation figure. Should any large deviations occur then loading should be stopped and thoroughly investigated until a reason is found. Empty tanks and full tanks in the system should occasionally be sounded. To ensure they remain as expected.
- The tanks are not to be overfilled. For vessels with closed loading, they should not be filled to more than 90% of their normal volumetric capacity and the loading rate should be slowed appropriately when approaching 90% of capacity. If 90% of tank capacity is to be exceeded, the flow rate into tanks must be significantly reduced, and arrangements made for the flow to be diverted into another tank if the complete closure of the vessel's valves is not possible. (85% for vessels without closed loading systems utilizing overflow tank)
- Cargo loading should not be carried out in such a way as to induce rapid changes of list or trim.



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- Fuel samples shall be provided, these should consist of drip samples representative of the entire batch of fuel loaded. If in any doubt additional samples should be taken especially at the start of loading for visual inspection.

On Completion of Bunkering, ensure that:

- Upon completion of loading, when disconnecting the hose, the officer in charge shall ensure a receptacle is available in case of any residual product at the coupling. Any minor spillages on deck are cleaned up.
- Any oil in the drip-trays is mopped up.
- Any oil-soaked materials are disposed of in a safe and non-polluting manner. Refer to the garbage management procedure for details.
- The officer in charge must compare and agree the quantity loaded before signing delivery receipts. If there is a substantial discrepancy the master must be notified before signing. The master should consult with the clients and management as necessary and raise a letter of protest as appropriate. If the clients request that no action is taken then this should be in writing.
- Stow the samples after logging them on the log sheet and signing the label as ships officer/receiver.
- Relevant entries are made in applicable logbooks.
- Relevant entries are made in the oil record book and that entries are countersigned by the master. (Use IMO MEPC.1/Circ.736/Rev.2)
- All personnel and necessary authorities are notified that bunkering is completed and signals taken down.
- Completion section of checklist is updated.
- complete set of papers is received for the bunkers loaded; including a bunker delivery note showing all required details, and a quality certificate for the fuel. (Where the bunker barge does not have the necessary bunker delivery note a generic one should be printed off for them to complete) If the bunker supplier cannot or will not supply the necessary paperwork then vessel management must be contacted.

Changes to Bunkering Plans

- Alterations to the plan for bunkering should only be made after full consideration has been given to all possible consequences resulting from these alterations. The risk of spills must be fully assessed.
- When bunkering plans are modified, the vessel must first factor their own fuel requirements. At all times, they must have sufficient reserve for own ship's use covering the projected voyage duration.
- Any irregularities in respect to the above must be communicated immediately to both the Fleet Manager and the charterer.

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Delivery of Fuel

The engineering officer of the watch (EOW) is responsible for safe delivery of all fuel. The checklist must be filled in for each operation and filed on board for at least 12 months. The following should be considered:

- Assess the prevailing weather conditions and anticipated weather including squalls in the vicinity.
- The crew member appointed to supervise the delivery process must ensure that they cannot be distracted during the operation.
- SOPEP/SMPEP kit must be easily accessible and ready for use.
- The manifolds to be used shall be checked and confirmed to be in good condition all other manifolds closed and capped.
- The OOW, crane operator and deck crew shall confirm a free line of sight and establish radio communication.
- The OOW shall be satisfied with positioning before the crane operator can lower the hose to the vessel at a height that allows the crew to secure the hose to the vessel's side rail. Personnel on the deck of the vessel must not be in the allocated landing zone whilst the crane is handling the hose.
- Once the hook is clear, connect the hose to the appropriate manifold. Be reminded that the hose coupling should, wherever possible, avoid contact with the vessel's structure and one should monitor the integrity of the hose coupling during transfer.
- The OOW shall at regular intervals confirm the discharged quantity to ensure the integrity of the system, if a large discrepancy develops the operation must be stopped and the source of the discrepancy investigated.
- Sufficient warning shall be given by the OOW prior to changing tanks.
- When pumping is finished, both the facility and vessel shall set their lines to allow the hose to be drained back to the vessel's tank. In suitable conditions the crane may also be used to lift the hose to aid draining.
- During periods of darkness adequate lighting must be available over the hose and support vessel throughout the operation.
- A Bunker Delivery Note shall be issued by the vessel and the discharge recorded in the Oil Record Book Part 1 using advice from IMO MEPC.1/Circ.736/Rev.2 Code I Example #22.