DNV·GL

INSPECTION OF A SHIP RECYCLING FACILITY

Site Inspection Report Application 007

European Commission DG Environment

Report No.: 2020-0583, Rev. 0
Document No.: 117PLW5D-4
Date: 2020-06-11

Project name:	Inspection of a ship recycling facility	DNV GL AS Maritime
Report title:	Site Inspection Report Application 007	Environment Advisory
Customer:	European Commission DG Environment,	Veritasveien 1
Customer contact:	[redacted]	1363 Høvik
Date of issue:	2020-06-11	Norway
Project No.:	10077071	Tel:
Organisation unit:	Environment Advisory	
Report No.:	2020-0583, Rev. 0	
Document No.:	117PLW5D-4	

Applicable contract(s) governing the provision of this Report: 070201/2017/767696/ENV.B3

Objective: To document the results of the site inspection at Leela Ship Recycling Private Limited, following the facility's application for inclusion in the European List of ship recycling facilities.

Prepared by:	Verified by:	Approved by:
[redacted] Principal Consultant	[redacted] Principal Consultant	[redacted] Head of Section
[redacted] Senior Principal Consultant		

DNV GL Distribution:

☒ OPEN. Unrestricted distribution, internal and external.

☐ INTERNAL use only. Internal DNV GL document.

☐ CONFIDENTIAL. Distribution within DNV GL according to applicable contract.*

☐ SECRET. Authorized access only.

*Specify distribution:

Keywords:
Ship recycling, ship recycling facility plan, hazardous waste, waste management, health, safety.

Rev. No.	Date	Reason for Issue	Prepared by	Verified by	Approved by
0		First issue	mardav, eifre	hust	tsv

Table of contents

List of Abbreviations

AERB – Atomic Energy Regulatory Board

ASSRGWA - Alang Sosiya Ship Recycling and General Workers' Association

CSIR - Council of Scientific and Industrial Research

DISH – Directorate of Industrial Safety & Health

DNV GL - a global quality assurance and risk management company

EPRP - Emergency Preparedness and Response Plan

ESIC - Employees' State Insurance Corporation

GEPIL - Gujarat Enviro Protection and Infrastructure (waste management facility in Alang)

GMB - Gujarat Maritime Board

GPCB - Gujarat Pollution Control Board

HSE – Health, safety and environment

IHM - Inventory of Hazardous Materials

ILO – International Labour Organization

IMO – International Maritime Organization

NABL - National Accreditation Board for Testing and Calibration Laboratories, a Constituent Board of Quality Council of India

PESO - Petroleum and Explosives Safety Organisation

PPE - Personal protective equipment

QMS - Quality management system

RPCB – Rajastan Pollution Control Board

SOC - Safety Observation Card

SRF – Ship Recycling Facility

SRFP - Ship Recycling Facility Plan

SRIA - Indian Ship Recycling Industry Association

SRP - Ship Recycling Plan

SRR - EU Ship Recycling Regulation

1 EXECUTIVE SUMMARY

The objective of this report is to document the results of the site inspection of Leela Ship Recycling Private Limited (the applicant, the facility), operating at Plot No 2 in Alang-Sosiya (Gujarat, India), following the facility's application for inclusion in the European List of ship recycling facilities. The on-site inspection took place on 21st and 22th of January 2020.

During the site inspection, the applicant demonstrated their management and execution of ship recycling performed at their facility, together with their interaction with relevant governing authorities.

The applicant appears to have a well running facility with a proven track record, has procedures with regards to health and safety and has in place facilities which one would expect for a facility applying for inclusion in the European List of ship recycling facilities. It was evident that the applicant had also made important investments in recent years to upgrade its ship recycling capability.

8. The lack of adequate hospital facilities in the Alang area remains an issue, which has not been resolved. Although the new GMB Multi Speciality Hospital has improved the situation, it appears that this facility at present has only limited emergency capabilities. Discussions with the ASSRGWA also confirmed that this hospital has inadequate capacity for the whole Alang workforce and lack of capacity to treat serious injuries. As of today, the only public hospital with sufficient emergency capabilities equipped to treat serious injuries is located in the city of Bhavnagar, approximately 1.5 hours' drive away from the Alang yards.

9. Ensuring sustainable downstream management of wastes generated by the ship dismantling activities is an important requirement under the EU Ship Recycling Regulation. Most of waste generated by the ship dismantling activities of the yard are transferred to the local TSDF (Treatment Storage and Disposal Facility) in Alang operated by GEPIL. Based on the information currently available to the evaluators, it appears that this facility is likely operated in accordance with human health and environmental protection standards that are broadly equivalent to relevant international or Union standards. However, GEPIL is not able to handle certain types of wastes (such as e-waste, batteries etc.), which are therefore transferred to other waste management facilities. [redacted]

The applicant has committed to address the shortcomings identified in this report and implement new measures and procedures with a view to achieving compliance with the requirements of the EU Ship Recycling Regulation. It is suggested to evaluate improvements during a re-inspection of the facility prior to concluding recommendations with regard to inclusion on the European List.

2 INTRODUCTION

The European Commission DG Environment (hereafter referred to as The Commission) has contracted DNV GL to conduct site inspections of the recycling facility Leela Ship Recycling Private Limited, located in Alang-Sosiya (Gujarat, India), hereafter referred to as the facility. An application for inclusion in the European List of ship recycling facilities has been registered for this facility under application number 007.

3 OBJECTIVE

The objective of the on-site inspection is to verify compliance of the facility with the requirements set out in the Ship Recycling Regulation Articles 13, 15 and 16 and clarified in the 2016 Technical guidance note[1].

Hereunder the objectives of DNV GL's methodology is to:

- Verify the Facility's capability to comply with the regulations and requirements listed in the assessment scope
- Assure that documented recycling processes, work procedures, quality controls and document handling are managed and implemented as specified in the regulations and requirements
- Ensure that the Facility has sufficient knowledge and understanding of the regulations and requirements for recycling facilities
- Assure consistent evaluation of facilities on equal terms

4 SCOPE OF WORK

The scope of the assessment is, according to contract:

- Ship recycling regulation (EU) No 1257/2013
- Technical guidance note under Regulation (EU) No 1257/2013 on ship recycling

Both documents refer extensively to the provisions of the Hong Kong Convention and the relevant guidelines of the IMO, the ILO, the Basel Convention and of the Stockholm Convention on Persistent Organic Pollutants, which are also taken into consideration for this assessment.

The scope for the methodology is divided into three main elements and a number of second and third level sub-elements. These practical steps ensured that all articles 13, 15 and 16 SRR requirements for inclusion of a ship recycling facility in the European List were checked.

1. **Management**

- Facility business model and quality statement
- Policy
- Management, ownership and organisation
- Quality assurance systems and certificates

[1] C/2016/1900, Communication from the Commission — Requirements and procedure for inclusion of facilities located in third countries in the European List of ship recycling facilities — Technical guidance note under Regulation (EU) No 1257/2013 on ship recycling. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52016XC0412(01)&from=EN

- Human resources (availability, skills and experience, training, stability etc.)

2. Safety, security and the environment

- Safety & health (PPE, hazardous materials, fire safety, medical services etc.)
- Security
- Environment (spills, emissions, etc.)
- Emergency preparedness and response (fire, medical, environmental etc.)
- Regional conditions (acts of nature, political, etc.)

3. Vessel demolition

- Applied rules, regulations and internal standards
- Recycling control, inspection and supervision regime
- Non-conformities and corrective actions
- Document control
- Facilities (methods, capacities, condition of equipment, logistics, etc.)
- Maintenance
- Recycling planning and execution
- Methodology, criteria and performance regarding:
  - Project start-up, commercial process etc.
  - Ship Recycling Facility Plan (SRFP)
  - Contract review, verification and acceptance criteria owner / cash-buyer / facility
  - Pre-planning
  - Vessel preparation (IHM, Ship Recycling Plan, flag state clearance, pre-cleaning etc.)
  - Vessel arrival and securing
  - Demolition management (methodology, "safe for entry", "safe for hot work", working at heights, lifting, supervision and reporting)
  - Waste disposal (sorting, sub-contractors, end users)
  - Completion instruction
  - Project close-out with de-briefing, lessons learned, suggestions for improvement

5 METHODOLOGY AND ACTIVITIES

The methodology followed the framework of DNV GL's facility assessment protocols and reporting formats, calibrated with the requirements and criteria of the Ship Recycling Regulation as clarified in the 2016 Technical guidance note.

Activities:

- Preparations, scheduling, travel arrangements, fact-finding, etc.
- Issue objective, scope and schedule to facility in advance
- Site assessment (2 days; 3 assessors)
- Reporting
- Issue of draft report
- Implement comments to the draft report
- Final report

The on-site assessment was performed according to a schedule advised to the Facility in advance, incorporating:

- Opening meeting
  - Introductions, present objective, scope and methodology, agree on schedule
  - Review of facility history, current activities, future ambitions
- Interviews with key responsible personnel in all relevant disciplines, including
  - Ownership and management
  - Contracts
  - Planning, preparations, vessel arrival and securing
  - Quality assurance, quality management systems
  - Human resources
  - Health, safety, security and environment
  - Vessel dismantling management
  - Quality control, document control
  - Project management
- Document review
  - Spot checks and evaluation of consistency, content, validation and language. Traceability
- Facility site inspection
  - Inspection of Facility, all workstations and worker facilities

- Inspection of vessel, for access and escape-ways
- Spot-checks of worker certificates and permits, crane certificates
- Lifting equipment, fall barriers, safe for entry, safe for hot-work etc.
- Questioning (brief) of foremen / supervisors on key procedures

- Closing meeting
  - Reiterate the objective of the inspection and present preliminary results in way of initial observations and findings
  - Facility may respond to the initial results, and agree to rectify non-conformities including deadlines and corresponding responsible persons
  - Acknowledgements and departure

The objective of the inspection is to verify compliance with the provisions of Articles 13, 15 and 16 of the Regulation as well as with the information submitted by the recycling facility with its application for the inclusion in the European List.

6 RESULTS OF THE ASSESSMENT

The facility Leela Ship Recycling Private Limited submitted an application for inclusion on the European list of ship recycling facilities in June 2016. Several additional documents were sent to the European Commission afterwards. Based on this information, a desk assessment report was transmitted to the facility in 2018. As a response to this desk assessment report, the facility sent additional information in April 2019. In view of these elements, it was agreed between the European Commission and the facility that an on-site inspection could take place to verify compliance with the requirements of the EU Ship Recycling Regulation. The on-site inspection of the facility took place on the 21st and 22nd of January 2020.

The SRF is operating at plot 2 in the coastal town of Alang, in Bhavnagar district, Gujarat, India. The SRF is one of the many ship recycling facilities located within the designated 'Alang-Sosiya Ship Recycling Yard' under the administrative control of Gujarat Maritime Board (GMB). Adjacent to the facility and both to the east and the west are similar facilities. Access road connecting with the road transportation network is accessible to the north of the facility.

The applicant facility has operated in the ship dismantling industry since 2002. The main representatives from the facility during the inspection were [redacted]

The evaluators from DNV GL were [redacted] and [redacted], accompanied by [redacted] from the EU Commission.

In connection with the inspection, a separate meeting with GEPIL took place on the 24th of January 2020 at their premises in Alang.

The table below summarises the results of the site inspection with respect to article 13, 15 and 16 of the SRR requirements for inclusion of a ship recycling facility on the European List.

DNV GL wishes to thank the management and key personnel at Leela Ship Recycling Private Limited for the friendly reception and good co-operation extended during the assessment, ensuring that the inspections could be carried out in an effective manner. Facilities for the assessment itself were excellent and the fullest degree of access to all aspects of the facility's areas and management was offered.

Site inspection results			Compliant?
Article 13-1 (a) it is authorised by its competent authorities to conduct ship recycling operation			
Technical guidance note 2.2.1, MEPC 210(63) Section 3.2.2	Authorisation	The facility is authorised by the competent authorities (GMB and GPCB) to conduct ship recycling. The authorisations by the GMB and GPCB contain conditions under which the facility should operate its activities. The GPCB Authorisation is valid up to 30.09.2023. [redacted]	Compliance was confirmed during the inspection.
Article 13-1 (b) it is designed, constructed and operated in a safe and environmentally sound manner			
Technical guidance note 2.2.1	Measures and infrastructure	[redacted]	[redacted]
Article 13-1 (c) it operates from built structures			
Technical guidance note 2.2.4	Operates from built structures	[redacted]	[redacted]

		[redacted] Storage tanks, storage- and separation areas, storerooms and offices, sanitary equipment, first aid room, emergency room, workshops and drinking water supply were identified on site. The worker dormitory complex is located in the GMB colony. [redacted]	
Article 13(1) (d) it establishes management and monitoring systems, procedures and techniques which have the purpose of preventing, reducing, minimising and to the extent practicable eliminating health risks to the workers concerned and to the population in the vicinity of the ship recycling facility, and adverse effects on the environment caused by ship recycling			
Technical guidance note 2.1.4 (a), (b) MEPC210(63) Section 3.4.1 / BC TG 6.2	General	[redacted]	[redacted]

[redacted]

It should be noted that the National Green Tribunal of India has recently ordered a comprehensive environmental audit to be conducted with respect to the existing environmental impact of the shipbreaking activities in Alang (link: http://www.indiaenvironmentportal.org.in/files/file/ship-breaking-environment-impact-NGT-order.pdf). It is understood that this study should have been completed by December 2019. Reportedly, the GMB is a project proponent and would facilitate the environmental audit team. [redacted]

		[redacted]	
	Soil	[redacted]	[redacted]
	Sediment	[redacted]	[redacted]
	Water	[redacted]	[redacted]
	Air	[redacted]	[redacted]
	Noise	[redacted]	[redacted]
	Surrounding area	[redacted]	[redacted]
Technical guidance note 2.1.4 (b),	Health	[redacted]	[redacted]

		[redacted]	[redacted]
2.1.4 Technical guidance note 2.1.4 (b), MEPC 210(63) 3.1.1 (5)	ISO certificates / management system / QMS	[redacted]	[redacted]
ILO SHG p21-23, p138:18.1, 18.3, p139:18.5	Workers facilities	The applicant has reserved a block in the GMB worker's colony as dormitory for its workers. The evaluators have previously (March 2019) witnessed the GMB worker's colony, including Leela's block, and it was deemed adequate and in good condition. Food is provided. Toilets and washing facilities are provided. [redacted] Bus transport is arranged for workers at the facility in the morning, at lunchtime and in the afternoon. The buses were observed on-site. [redacted]	Compliance was confirmed during the site inspection.
Article 13 (1) (e) it prepares a ship recycling facility plan			
Technical guidance note 2.1.2	SRFP	[redacted]	[redacted]

		[redacted]	[redacted]
MEPC 210(63) Section 3.1.1 (1)	Ownership	The facility is owned by the Leela Group. The Leela Group of Companies owns four ship recycling facilities, are involved in the travel and tours industry, in real estate and construction, in hospitality, the diamond industry and in electronic and print media. The Leela Group has more than 2000 employees. During the site inspection the applicant presented its Corporate Social Responsibility (CSR) initiatives.	Compliance was confirmed during the site inspection.
MEPC 210(63) Section 3.1.1 (3), (4)	Facility organisation	[redacted]	[redacted]
MEPC 210(63) Section 3.1.1 (4)	Roles and responsibilities	[redacted]	[redacted]
MEPC 210(63) Section 3.1.1 (6)	Policy	A 'Health, Safety and Environment Policy' is presented under section 3.3.1.1 in the SRFP. The facility advised that the policy is periodically reviewed, and with the intention to be above the minimum compliance level.	Compliance was confirmed during the site inspection.

	Working hours and annual leave	All ship recycling plots are termed as a factory in India and therefore the Factories Act 1948 is applicable to them. In short: - Workers can work in a factory for up to nine hours a day (excluding rest) and up to forty-eight hours in a week. - Workers that work more than nine hours in any day or for more than forty-eight hours in any week are entitled to twice the ordinary rate of wage. - Total working hours including overtime shall not exceed 60 hours per week. - Workers are generally entitled to at least 24 hours of weekly rest on Sunday. The weekly rest period is reckoned as paid time. - Workers required to work on weekly holiday are entitled to the substitute holiday three days before or after the usual weekly holiday. - Annual leave of 12 working days for all the workers who have worked at least 240 days in a year. An adult worker is entitled to one day of earned leave for every 20 days of service. Workers shall be paid their usual daily wage rates for the days of earned leave. A worker is entitled to full daily wages during the term of annual leave. - Workers are entitled to paid leave for Festival (public and religious) holidays. These include memorial holidays and religious holidays. There are many festival and religious holidays in India, three of which are fully covered national public holidays. These are Republic Day (January 26), Independence Day (August 15) and Mahatama Gandhi's Birthday (October 2). On-site the applicant gave the following description on working hours: - [redacted] - Sundays: no work is reportedly allowed	[redacted]

[redacted]

	Workers contracts, minimum wages, insurance	[redacted] There is a special salary range for ship recycling employees published in the Gujarat Government Gazette, dated 21.02.2014, specifying the minimum rates of wages per day for workers in the ship breaking industry in the State of Gujarat. It consists in a fixed minimum amount and of a special allowance, which is adjusted every six months. At the time of the inspection, the minimum rates of wages per day (in INR) were as below: The applicant provides ESIC (Employees' State Insurance Corporation) insurance and payments were witnessed on-site.	[redacted]

Classes of Employees	Basic Minimum Wages	Daily allowance	Total
Skilled	255	47.70	302.70
Semi-skilled	245	47.70	292.70
Unskilled	235	47.70	282.70

[redacted]

- [redacted]
- [redacted]

Sickness Benefits under the ESIC scheme entitles workers to 70% of the average daily wages during the period of certified sickness and is payable for 91 days during 2 consecutive benefit periods. To qualify for sickness benefit, the insured worker is required to contribute for 78 days in a contribution period of 6 months. Extended Sickness Benefit may be granted up to two years for 34 malignant and long-term diseases at an enhanced rate of 80 per cent of wages (https://www.esic.nic.in/extended-sickness-benefit).

Per ESIC, dependent benefits are paid at the rate of 90% of wage in the form of monthly payment to the dependants of a deceased insured person, in cases where death occurs due to employment injury or occupational hazards.

[redacted]

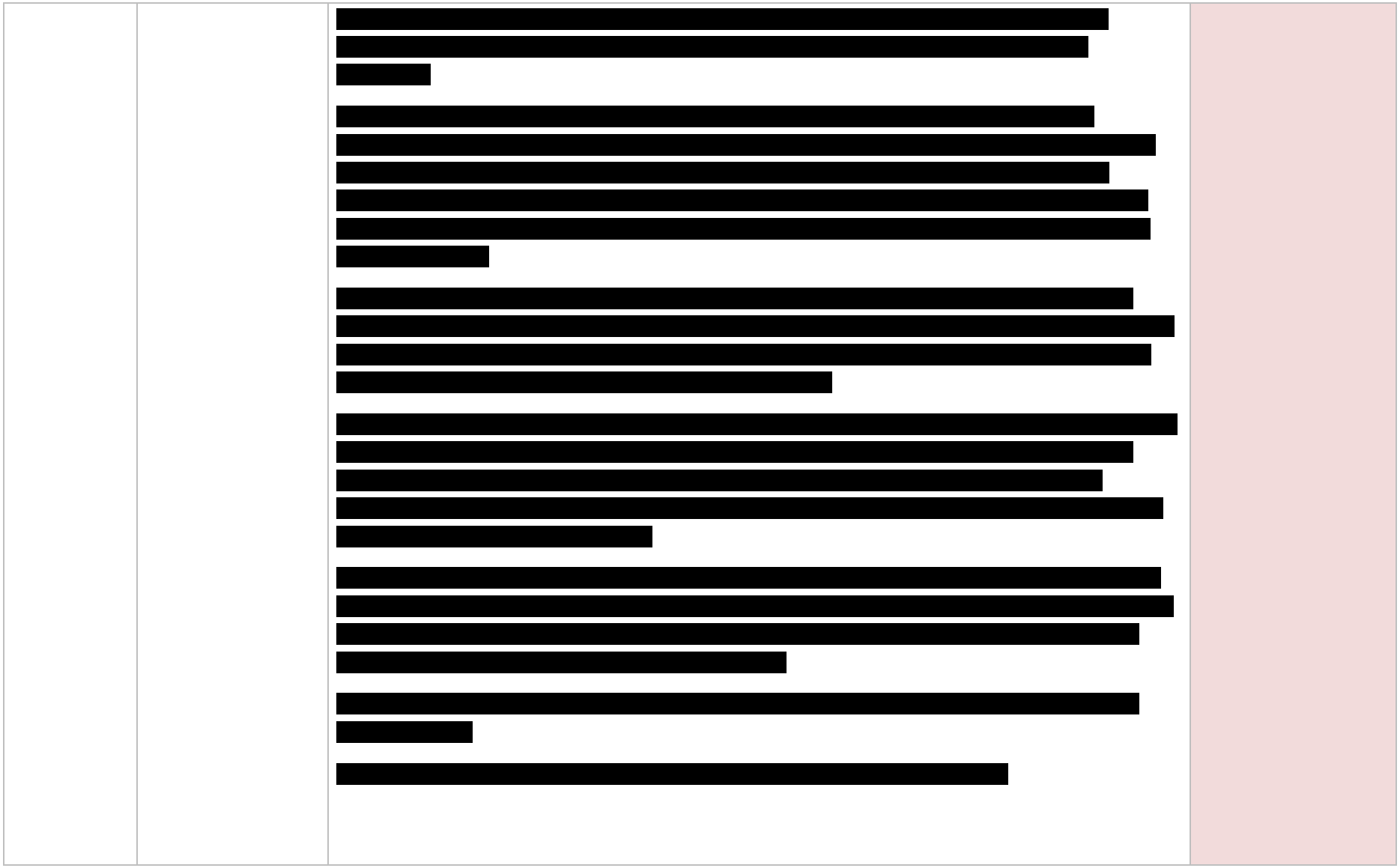
- [redacted]
- [redacted]
- [redacted]
- [redacted]

[redacted]

		[redacted]	
MEPC 210(63) Section 3.1.1 (7)	Instructions and procedures	[redacted]	[redacted]

		[redacted]	
MEPC 210(63) Section 3.1.4	Project management progress reporting	[redacted]	[redacted]
Article 13 (1) (f): it prevents adverse effects on human health and the environment, including the demonstration of the control of any leakage, in particular in intertidal zones;			
Technical guidance note 2.2, 2.2.1, p8:	Intertidal zone	[redacted]	[redacted]

footnote (26), 2.2.2 (f), MEPC 210(63) Section 3.4.4.3/BC TG: p13: Table 1, p33: Table 5, p44: 4.1 / ILO SHG: p65: 7.2.4.4	Control of leakage Preventive actions	[redacted] The evaluators sighted a cleaned fuel tank. The tank was seen to be free of any remaining liquid or sludge. [redacted]	[redacted]



Article 13 (1) (g) (i); the containment of all hazardous materials present on board during the entire ship recycling process so as to prevent any release of those materials into the environment; and in addition, the handling of hazardous materials, and of waste generated during the ship recycling process, only on impermeable floors with effective drainage systems;			
Technical guidance note 2.2.2, MEPC 210(63) Section 3.3.4.3 / BC TG: p78ff: 5.3, p67: figure 6	Cutting areas	The secondary cutting areas were seen with impermeable concrete flooring partly covered in steel sheets, with surrounding curbs and drains. In general, the facility was found in tidy, swept and orderly condition.	Compliance was confirmed during the site inspection.
Technical guidance note 2.2.2, MEPC210(63) Section p34: 3.4.4.1	Drainage	The impermeable cutting areas were seen with curb stones, drainage and collecting tanks. It is a requirement that the handling of all hazardous material generated during the ship recycling process, only shall be conducted on impermeable floors with effective drainage systems. [redacted]	[redacted]
Technical guidance note 2.2.	Wastewater treatment plant	The drain water stored in tanks on-site are emptied by trucks and delivered to GEPIL. [redacted]	[redacted]

		[redacted] In a meeting with GEPIL in January 2020, storm water records were witnessed on-site. It was evident that only a few facilities deliver storm water to GEPIL. The applicant was amongst the listed yards. [redacted] [redacted]	[redacted]
	Impermeable floors	The impermeable concrete floors were seen intact and solid. The secondary cutting area had steel plates to aid safe steel cutting.	Compliance was confirmed during the site inspection.
Technical guidance note 2.1.4, 2.2.2, 2.2.3, 2.2.5, 3.5, MEPC 210(63) Section 3.4.2.5 / BC TG 3.1, 3.3, 3.4.3, 4.1, 5.1, 5.2(Zone D), 5.3(Zone D), p92: Table 11	Waste and hazardous waste storage	Waste storage rooms for [redacted] were inspected and found suitable, clean, but empty.	Compliance was confirmed during the site inspection.
Article 13 (1) (g) (ii): that all waste generated from the ship recycling activity and their quantities are documented and are only transferred to waste management facilities, including waste recycling facilities, authorised to deal with their treatment without endangering human health and in an environmentally sound manner;			
Technical guidance note 2.1.4, 2.2.2, 2.2.3, 2.2.5, 3.5, MEPC 210(63) Section 3.4.2, 3.4.3/ BC TG p11, p12, p48ff: 41, p50ff: 4.2,	Waste management	It is a requirement that all wastes generated from the ship recycling activity are properly documented. The 2016 Technical Guidance clarifies this further in section 2.2.2, where it is written: *All elements separated from the ship, including large blocks, constitute either 'hazardous materials' or 'waste generated during the ship recycling process'.* [redacted]	[redacted]

		[redacted] [redacted] [redacted] [redacted] [redacted] The list of POPs included in the Stockholm Convention is available here: http://chm.pops.int/TheConvention/ThePOPs/AllPOPs/tabid/2509/Default.aspx Specific information on the production and use of these compounds can be found under the Persistent Organic Pollutants Review Committee documents: http://www.pops.int/Convention/POPsReviewCommittee/Chemicals/tabid/243/Default.aspx [redacted] [redacted]	

		[redacted]	
Technical guidance note 2.1.4, 2.2.2, 2.2.3, 2.2.5, 3.6, MEPC 210(63) Section 3.4.2, 3.4.3/ BC TG p11, p45ff: 7. / 4.2	Waste disposal	Please refer to Article 15(5) below.	[redacted]
Article 13 (1) (h); it establishes and maintain an emergency preparedness and response plan; ensures rapid access for emergency response equipment, such as fire-fighting equipment and vehicles, ambulances and cranes, to the ship and all areas of the ship recycling facility;			
Technical guidance note 2.1.3, MEPC 210(63) Section 3.3.5/ BC TG p3, p5/6, p47, p56, p63/64/65/66/67, p70, p81, p83, p87, p89/ ILO SHG p32: 4.6, p 49: 7.1.8, p 128:16.	Emergency preparedness and response plan	During the site inspection, the applicant presented a revised EPRP. The revised EPRP was an improvement compared to the previous version. [redacted]	[redacted]
Technical guidance not 2.2.4, MEPC 210(63) Section 3.2.1	Emergency access routes	Ensuring rapid access for emergency response equipment, including firefighting equipment and vehicles, ambulances and cranes, to the ship and all areas of the ship recycling facility is an important requirement under the EU Ship Recycling Regulation. On site, it was observed that the facility had clear and amply marked emergency access and evacuation routes, marked as yellow lines. An assembly station was clearly marked.	[redacted]

		Signage was found good. [redacted]	
MEPC 210(63) Section 3.2.1	Access and logistics within facility,	Access to the ship within the facility for ambulances and fire trucks was found good and well-marked.	Compliance was confirmed during the site inspection.
Technical guidelines 2.1.4 (b), MEPC 210(63) Section 3.2.1, 3.3.5, ILO SHG, Section 3.6	Medical services and facilities	The applicant has a first aid room with a bench and a stretcher. [redacted] In terms of medical facilities in the area, the evaluators know that the new GMB Multi Speciality hospital in Alang is now in operation. However, it appears that this hospital has only limited emergency capability even though surgical equipment, including an operating theatre is available. According to the doctor's schedule obtained from the GMB hospital the 14th of October 2019, a surgeon is only available on Sundays for planned surgery from 09:00 -17:00 and Fridays from 14:00-17:00. Outside of these hours, and in case MRI or CTI is required, an injured worker would need be sent to Bhavnagar, approximately 1.5 hours' drive away. Discussions with the Workers Union also confirmed that this hospital has inadequate capacity for the whole Alang workforce and lack of capacity to treat serious injuries. In this context, it is further noted that the absence of hospital facilities equipped to treat severe injuries in Alang has been a longstanding problem. Geetanjoy Sahu reports in the article 'Workers of Alang-Sosiya A Survey of Working Conditions in a Ship-Breaking Yard,	[redacted]

		1983-2013' (https://www.epw.in/journal/2014/50/special-articles/workers-alang-sosiya.html) that the inadequate health facilities at Alang have been raised and discussed in various forums, ranging from the Supreme Court to the Inter-Ministerial Meeting in India, but has not been resolved. [redacted]	
Technical guidelines 2.1.4 (b), MEPC.210(63), Section 3.3.1, 3.3.4.11	Regulatory requirements health and safety	By checking of records on-site the evaluators deemed the facility currently to comply with regulatory health and safety requirements. In this context, it is further noted that safety officers appointed by the GMB reportedly "*inspects yards on a daily basis and keep a close watch on ship recycling activities and if any violation is observed at plot during ship recycling, a penalty of Rs. 10,000 is levied by GMB and plot activities are also suspended (For 2 to 3 days) in some of the cases and they are only restarted after compliance*." [redacted] It should be noted that Comptroller and Auditor General of India released a report in August 2018 (https://saiindia.gov.in/sites/default/files/audit_report_files/Report_No_4_of_2018_-_General_and_Social_Sector_Government_of_Gujarat.pdf) indicating that safety inspections carried out in Alang by the Directorate of Industrial Safety and Health (DISH) in a three-year period (between March 2014 and March 2017) were grossly below target and failed to achieve the desired result to act as deterrence to non-compliance of the provisions of the Factories Act relating to safety, health and welfare of workers thereby leading to	Compliance was confirmed during the site inspection.

		accidents.	
Article 13 (1) (i) it provides for worker safety and training, including ensuring the use of personal protective equipment for operations requiring such use;			
Technical guidance note 2.3.1	Safety inspectors on site	[redacted]	Compliance was confirmed during the site inspection.
Technical guidance note 2.3.2	Condition of safety equipment	In general, the standard and condition of safety equipment was found good. First aid kits were available in the first aid room. Lifebuoys and life wests were posted onboard the vessel.	Compliance was confirmed during the site inspection.
Technical guidance note 2.3.3, MEPC 210(63) Section 3.1.2/3.2.2	Safety induction and training, employees	The facility has an implemented safety induction training and re-training scheme for new and current employees. Personnel training files were witnessed during the site inspection, as well as the training matrix with type and frequency of training for each employee.	Compliance was confirmed during the site inspection.
Technical guidance note 2.3.3, MEPC 210(63) Section 3.1.2/3.2.2	Safety induction and training, subcontractors	Subcontractors, as for migrating workers, must register with the required training certificates before start of work. All subcontractors are given safety induction.	Compliance was confirmed during the site inspection.
Technical guidance note 2.3.3, MEPC 210(63) Section 3.1.2/3.2.2	Safety induction, visitors	The evaluators were subject to entry registration, and a safety induction upon arrival. PPE was provided for the site inspection, consisting of safety shoes, helmet, high visibility vest, safety glasses, dust mask and gloves.	Compliance was confirmed during the site inspection.
Technical guidance note 2.3.3, MEPC	Risk Assessment	A risk assessment for job hazards was presented and found acceptable. [redacted]	Compliance was confirmed during

210(63) Section 3.1.2/3.2.2		[redacted]	the site inspection.
MEPC 210(63) Section 3.1.2	Hazardous waste handling training	[redacted]	[redacted]
MEPC 210(63) Section 3.3.5	Ship access control	The facility had a persons on board (POB) system, where workers are required to deposit their access card before going onboard, and returned when departing the vessel.	Compliance was confirmed during the site inspection.
MEPC 210(63) Section 3.3.4.5	Prevention of falling from heights	Working at height training was in force; records of training were witnessed on site. Safety harnesses were seen in the PPE room. It was suggested to update the SRFP with sketches showing principle of erecting barriers.	Compliance was confirmed during the site inspection.
MEPC 210(63) Section 3.3.4.1.8	Safety signage on site	Safety signage was found to be well located and presented. [redacted]	Compliance was confirmed during the site inspection.

		[redacted]	
MEPC 210(63) Section 3.3.4.1.8	Safety signage on vessel	Safety signage was found to be good.	Compliance was confirmed during the site inspection.
MEPC 210(63) Section 3.3.4.6	Lifting equipment and instructions	[redacted] <u>Pulling winches</u> Inspected and tested by an independent competent person [redacted] 6-month cycle employed. Weekly, monthly, 6-monthly and yearly maintenance registers in existence. <u>Wires</u> [redacted] <u>Cranes</u> Maintenance schedules, records, tests and certificates for the main cranes were sighted. Independent inspection and testing is performed by an independent competent organisation [redacted] – with a 6 monthly cycle employed. <u>Sheave blocks</u> [redacted]	[redacted]

		General [redacted]	
MEPC 210(63) Section 3.3.4.6	Crane operators' certification	Crane operators are trained and certified.	Compliance was confirmed during the site inspection.
ILO SHG 13.7	Lifting equipment, authorization	Found adequate.	Compliance was confirmed during the site inspection.
MEPC 210(63) Section 3.1.2	Certification/ training of cutters	The cutters are trained by GMB over a period of 15 days. Only workers certified by GMB can work as cutters.	Compliance was confirmed during the site inspection.
MEPC 210(63) 3.4.3	Cutting procedures	The cutting plan and procedures were explained by the applicant and found adequate.	Compliance was confirmed during the site inspection.
MEPC 210(63) Section 3.3.4.3 / ILO SHG: p108ff:13.	Steel cutting machines	The cutters use 3-way torches with flashback arrestors. [redacted]	Compliance was confirmed during the site inspection.
ILO SHG: p67:7.2.4.4, p108ff:13.	Winches, mooring gear.	The pulling winches were identifiable in the facility's records, tested and certified by a third party on a 6-monthly basis.	Compliance was confirmed during the site inspection.
MEPC 210(63) Section 3.3.4.6.	Ropes/chains/	The records for testing and certification of chains, shackles, wire ropes, pulleys and slings were witnessed and found in order. They are inspected on a 6-montly basis by an	[redacted]

	slings	independent third party. [redacted]	[redacted]
MEPC 210(63) Section 3.3.4.8	Maintenance and decontamination of tools and equipment	A maintenance register of equipment was witnessed and seen in order.	Compliance was confirmed during the site inspection.
ILO SHG 16.1.6	Eyewash	[redacted]	[redacted]
MEPC 210(63) Section 3.3.4.8	Condition of electrical equipment	The condition of electrical equipment and wiring was found in acceptable / good condition.	Compliance was confirmed during the site inspection
MEPC 210(63) Section 3.3.4.7	Housekeeping and illumination	Housekeeping and illumination were found adequate / good.	Compliance was confirmed during the site inspection
ILO SHG: p49: 7.1.7	Instructions and signage	Signage, both informative and safety, was observed as very good.	Compliance was confirmed during the site inspection.

Technical guidance note 2.1.3, MEPC 210(63) Section 3.3.5/3.3.6 / BC TG: p63: 4.5	Fire station manning, fire-fighters	[redacted] The facility had a fire and safety room, with firemen's outfit and breathing apparatus, [redacted] The facility has two emergency response teams responsible for firefighting, one for ship and one for shore. [redacted]	[redacted]
ILO SHG: p83: 8.8.8	Fire station equipment	[redacted]	[redacted]

		[redacted]	
MEPC 210(63) Section 3.3.6, ILO SHG: 8.8.11	Fire alarm system on shore	[redacted]	Compliance was confirmed during the site inspection.
ILO SHG: 8.8.11	Fire alarm system on vessel	[redacted] the alarm system onshore was reportedly loud. [redacted]	[redacted]
Technical guidance note 2.3.3, MEPC 210(63) Section 3.3.6, ILO SHG: 8.8	Fire prevention measures general	Fire prevention measures are laid down in the SRFP and EPRP. The primary prevention measure is the safe for hot work procedure, managed by the HSE Department, which was seen to be implemented. General training on fire prevention and mitigation for all workers were in place. [redacted]	Compliance was confirmed during the site inspection.
MEPC 210(63) Section 3.3.6, ILO SHG 13.4.5	Combustible materials and hot work	The facility has an instruction, SRFP Sec.3.3.4.2, that prior to steel cutting all combustible materials in the area are removed.	Compliance was confirmed during the site inspection.
MEPC 210(63) Section 3.3.4.4, ILO SHG 8.8.1, 13.5.2.	Condition of AC/OX lines	The facility does not have a central LPG tank, but uses portable bottles in racks. Liquid oxygen storage is centralised in a tank. The tank was found to be in good condition. AC/OX hoses, connections and gas manifolds were found new and in good condition.	Compliance was confirmed during the site inspection.
MEPC 210(63) Section 3.3.4.4	Transporting/	Bottles were generally stored and transported in an adequate manner. [redacted]	Compliance was

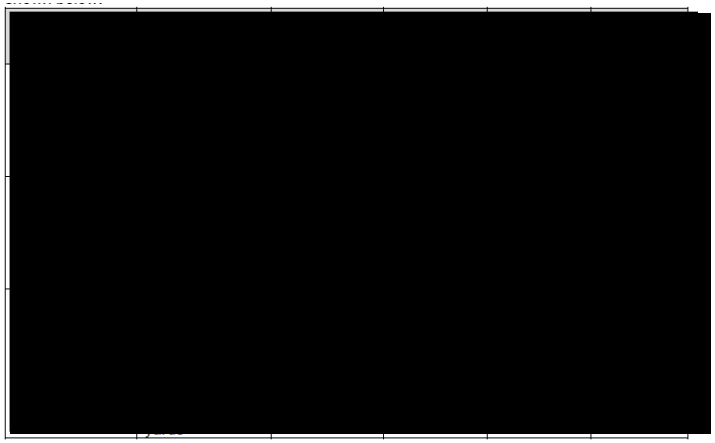
	storing flammable gases	[redacted]	confirmed during the site inspection.
MEPC 210(63): p21: 3.3.5, p23: 3.3.6	Fire hydrants	Hydrants and hoses were observed on site. [redacted] hydrant and hose were tested and seen with adequate pressure and spray range. The fire hydrants were supplied by a fire water tank.	Compliance was confirmed during the site inspection.
ILO SHG: p83: 8.8.10	Fire extinguishers	Fire extinguishers were sighted throughout the facility. The evaluators spot checked for expiry date. All were found in order. [redacted]	[redacted]
MEPC 210(63): p22: 3.3.6, ILO SHG: p82: 8.8.3	Smoking areas	[redacted]	[redacted]

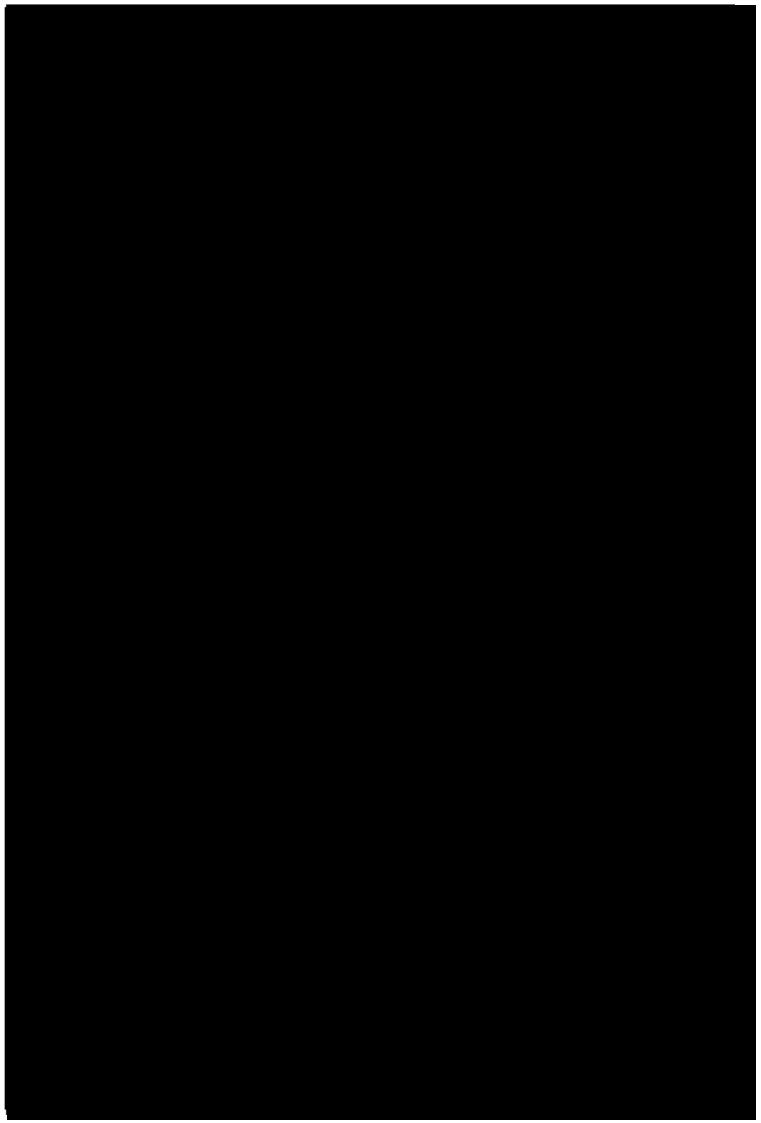
		[redacted]	
	Access control to facility	The facility has an in-house security team, responsible for 24/7 site security and security procedures. The security office was observed, being the location of signing in and out, with visitor and employee ID cards. The assessors were required to register on arrival, receiving an entry ID card. The facility was covered by CCTV.	N/A
ILO SHG 8.4.2	Entrances / gates, fencing	Employee and visitor access cards are issued by the security office. Workers enter and leave through the main gate, or security office gate, covered by CCTV.	Compliance was confirmed during the site inspection.
Technical guidance note 2.3.3, 2.1.4, 2.3.1, MEPC 210(63) Section 3.1.2, 3.1.4, 3.3.4.3, 3.3.6, 3.4.4 / BC TG: p3: figure 1, p84: 6.1, 6.2,	Training	The facility has an implemented training scheme described in the SRFP. A selection of training records were sighted during the site visit, [redacted]	[redacted]
Technical guidance note 2.3.2, MEPC 210(63) Section 3.3.4.10	PPE	The use of PPE was observed to be well implemented at all times during the site visit. The workers had readily available PPE, at no cost. The PPE store was found well stocked. The evaluators were offered new PPE for the site tour. [redacted] The cutters were observed using half faced mask with 3M [redacted] cartridges. Expiry dates on mask and filters were all ok.	[redacted]

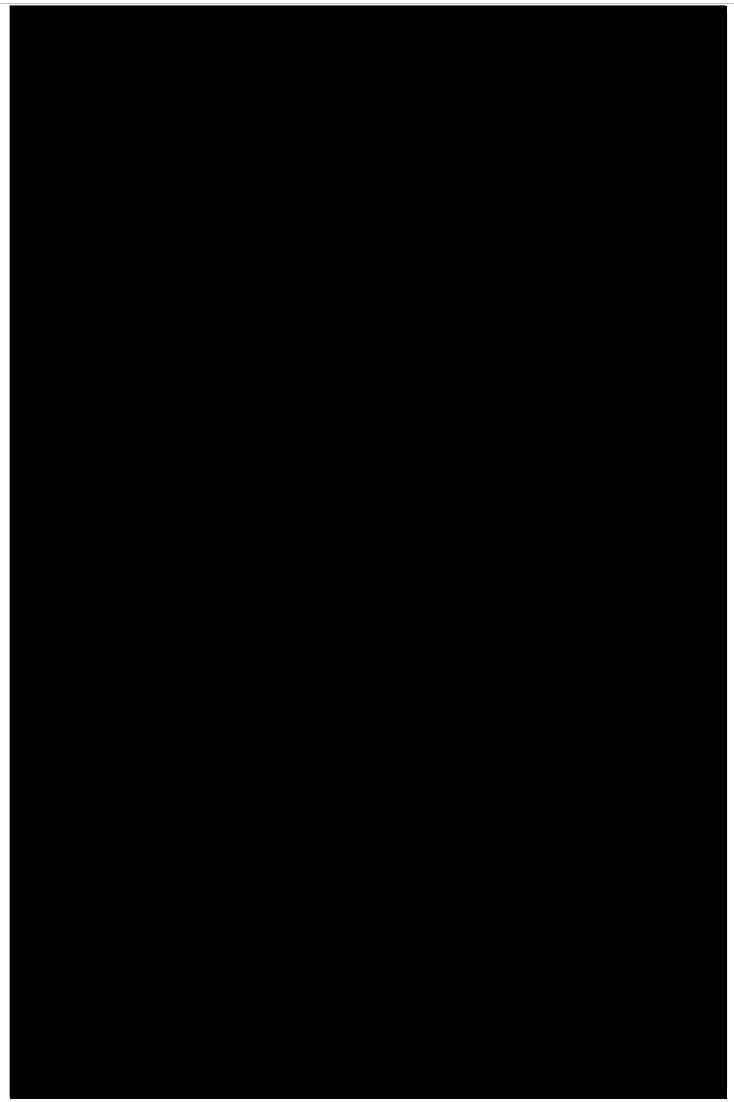
		According to 3M, the [redacted]-respirator cartridge helps provide respiratory protection from certain organic vapours, chlorine, hydrogen chloride, sulphur dioxide, chlorine dioxide, hydrogen sulphide, or hydrogen fluoride. The cartridge may be used for vapour concentrations up to 10 times the Permissible Exposure Limit. [redacted]	
Article 13 (1) (j): it establishes records on incidents, accidents, occupational diseases and chronic effects and, if requested by its competent authorities, reports any incidents, accidents, occupational diseases or chronic effects causing, or with the potential for causing, risks to workers' safety, human health and the environment;			
Technical guidance note 2.3.4, MEPC 210(63) Section 3.3.4.11 and Appendix IV, ILO conventions	Medical monitoring	The applicant used to have a medical monitoring program in place using the prescribed Form 32 and 33. Based on input from the previous inspections reports in Alang the applicant had initiated additional monitoring of workers' health upfront of the inspection. Medical records were witnessed on-site and found good. [redacted]	[redacted]
	Incident monitoring and reporting	The applicant provided samples of near miss and investigation reports, [redacted]	[redacted]

	Statistics	[redacted]	[redacted]
	Near-miss reporting	[redacted]	[redacted]
	Non-conformance procedures	[redacted]	[redacted]
	HSE Incentives	[redacted]	Compliance was confirmed during the site inspection.
	Corporate social responsibility	The facility does not have a corporate social responsibility (CSR) statement in the SRFP, but the facility presented several CSR projects they were involved with on-site.	N/A

Article 13 (2) (a): the operator of a ship recycling facility shall send the ship recycling plan, once approved in accordance with Article 7(3), to the ship owner and the administration or a recognised organisation authorised by it;			
MEPC 210(63) Section 3.2.4, 3.4.2.1	Ship recycling plan	[redacted]	[redacted]
Article 13 (2) (b): report to the administration that the ship recycling facility is ready in every respect to start the recycling of the ship;			
MEPC 3.2.3-3.2.6	Ready for recycling certificate	As part of the application file, the facility submitted the specific statement concerning the recycling of EU Member States flag ships (part 5 of the application). According to the signed statement, the facility will prior to any recycling of the ship: — send the ship recycling plan, approved by the competent authority according to the procedure applicable, to the ship owner and the administration or a recognised organisation authorised by it; — report to the administration that the ship recycling facility is ready in every respect to start the recycling of the ship The evaluators are of the impression that the ship recycling facility can adapt to these new legal regimes.	The evaluators are of the impression that the organisation easily can adapt to these new legal regimes.
Article 13 (2) (c): when the total or partial recycling of a ship is completed in accordance with this Regulation, within 14 days of the date of the total or partial recycling in accordance with the ship recycling plan, send a statement of completion to the administration which issued the ready for recycling certificate for the ship. The statement of completion shall include a report on incidents and accidents damaging human health and/or the environment, if any.			
MEPC 210(63) Section 3.2.7	Statement of completion	[redacted]	[redacted]

Article 15(2) (a): identify the permit, license or authorisation granted by its competent authorities to conduct the ship recycling and, where relevant, the permit, license or authorisation granted by the competent authorities to all its contractors and sub-contractors directly involved in the process of ship recycling and specify all information referred to in Article 16(2);			
Technical guidance note 2.2.1, MEPC 210(63) Section 3.2.2	Authorisation	The facility is authorised by the competent authorities (GMB and GPCB) to conduct ship recycling. The authorisations by the GMB and GPCB contain conditions under which the facility should operate its activities.	Compliance was confirmed during the site inspection.
MEPC 210(63) p8: 3.1.2, p10: 3.2.2 / BC TG: p38: 3.4.3	Sub-contractors	[redacted] 	Compliance was confirmed during the site inspection.



Article 15 (2) (b): indicate whether the ship recycling plan will be approved by the competent authority through a tacit or explicit procedure, specifying the review period relating to tacit approval, in accordance with national requirements, where applicable;			
MEPC.196(62) Section 5	Explicit or tacit procedure	Today the SRP is reportedly approved by explicit approval by GMB. This is specified in the Ship Recycling Code, 2013 under chapter 5.3. The evaluators were of the impression that the organisation easily could adapt to any new legal regimes with regards to approval of the SRP.	The evaluators are of the impression that the organisation easily can adapt to these new legal regimes.
Article 16 (2) (a): the method of recycling; (b) the type and size of ships that can be recycled; (c) any limitation and conditions under which the ship recycling facility operates, including as regards hazardous waste management; (d) details on the explicit or tacit procedure, as referred to in Article 7(3), for the approval of the ship recycling plan by the competent authority; (e) the maximum annual ship recycling output			
	Method of recycling	The method is by beaching/intertidal landing.	Compliance was confirmed during the site inspection.
	Type and size of ships that can be recycled	The facility can dismantle all ship types with the following ship dimensions: Length: no limit Width: [redacted] Draught: no limit	Compliance was confirmed during the site inspection.
	Any limitation and conditions	The limitations and conditions under which the facility operates are included in the relevant permits issued by the competent national authorities. [redacted]	[redacted]
	Maximum annual ship recycling output	[redacted]	[redacted]

		[redacted]	
Article 15 (2) (c): confirm that it will only accept a ship flying the flag of a Member State for recycling in accordance with this Regulation;			
	Confirmation	A formal Confirmation Statement concerning the recycling of EU Member State flag ships was provided and is in accordance with the template (part 5) of Commission Implementing Decision (EU) 2015/2398. [redacted]	Compliance was confirmed during the desk assessment.
Article 15 (2) (d): provide evidence that the ship recycling facility is capable of establishing, maintaining and monitoring of the safe-for-hot work and safe-for-entry criteria throughout the ship recycling process;			
HKC: p14: R1(7), MEPC 210(63) Section 3.3.4.2 / ILO SHG: p110:13.4	Safe- for- hot work certificate, warning signs and labels	The safe for hot-work procedure including competent persons, testing, marking and recording was seen to be in use and in good order.	Compliance was confirmed during the site inspection.
HKC: p26: R19(2), BC TG: p47: 4.2.1	Confined spaces	The safe for entry procedure including competent persons, testing, marking, permits and recording was seen to be fulfilling and in good order.	
Article 15 (2) (e): attach a map of the boundary of the ship recycling facility and the location of ship recycling operations within it;			
HKC: p43: 1.5, MEPC 210(63) Section 3.2.1	Map of facility	The Facility Layout drawing provides detailed information and was found to represent the actual layout of the facility.	Compliance was confirmed during the site inspection.
Article 15 (2) (f) for each hazardous material referred to in Annex I and additional hazardous material which might be part of the structure of a ship, specify:			
(i) whether the ship recycling facility is authorised to carry out the removal of the hazardous material. Where it is so authorised, the relevant			

personnel authorised to carry out the removal shall be identified and evidence of their competence shall be provided;			
MEPC 210(63) Section 3.1.3, 3.1.4	Workers' certificates/ licences	Workers' licences and certificates were spot checked and found in order.	Compliance was confirmed during the site inspection.
(ii) which waste management process will be applied within or outside the ship recycling facility such as incineration, landfilling or another waste treatment method, the name and address of the waste treatment facility if different from that of the ship recycling facility, and provide evidence that the applied process will be carried out without endangering human health and in an environmentally sound manner;			
MEPC.210(63), Section 3.1.1	Regulatory requirements environment	The main requirements applying for shipbreaking activities under Indian law are currently set out in the Shipbreaking Code 2013. The applicant reportedly follows the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships. [redacted] In addition, the license issued to the applicant by the GPCB contains specific environmental requirements stemming from relevant international Conventions implemented by India (e.g. the Stockholm Convention and the Basel Convention). [redacted]	[redacted].
Technical guidance note 2.1.4, MEPC210(63) Section 3.4.1, Appendix 1, BC TG Executive summary (p1),	Environmental management	The [redacted] has the overall responsibility.	Compliance was confirmed during the site inspection.

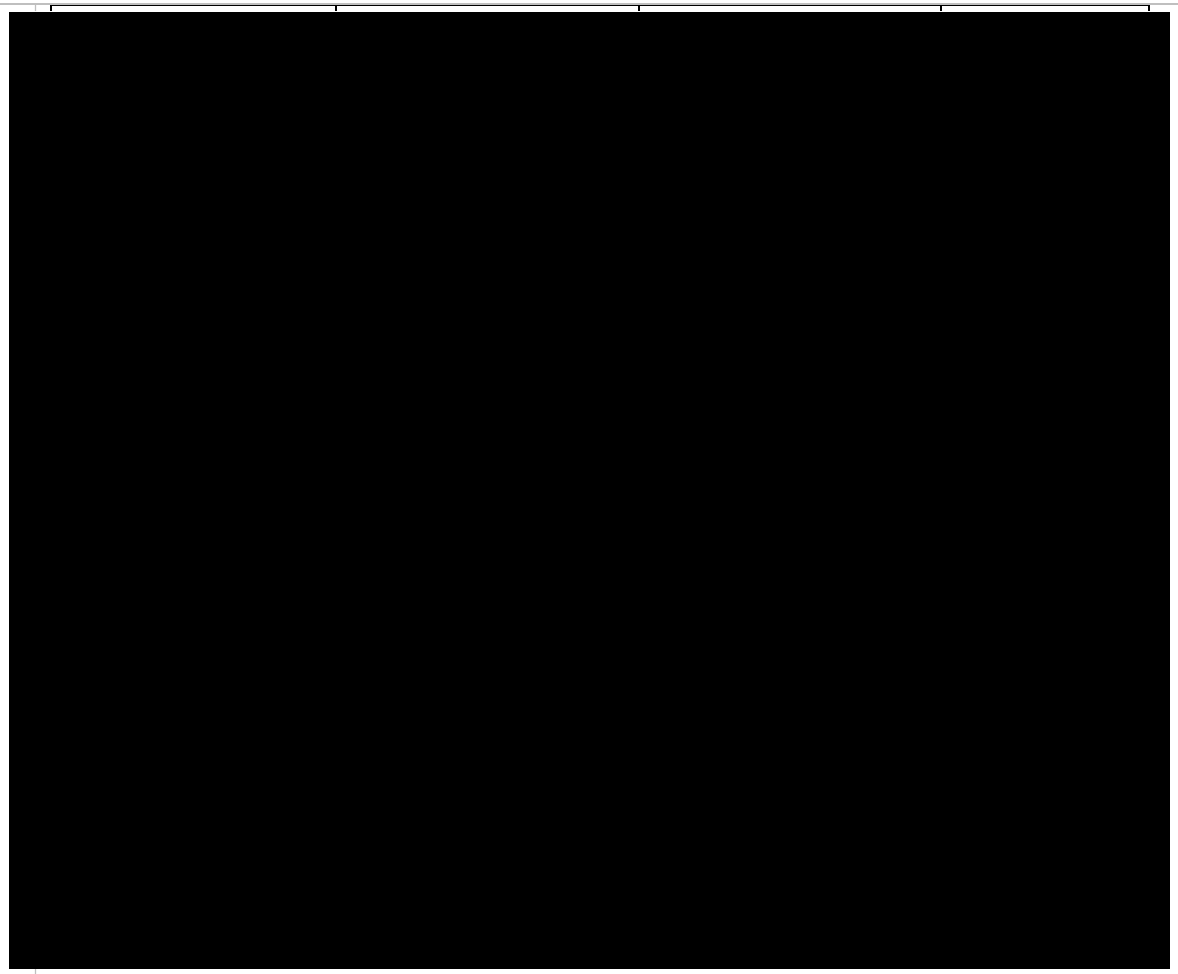
4.3, 2.1, 2.5, 3.2, 3.4.2, 3.4.4, 4.1, 4.2.2, 4.2.5, 6.2, 7.1, 7.3,			
Technical guidance note 2.2.5, MEPC210(63) Section 3.4.2, BC TG: p45: 4.2, ILO SHG: p4: 2.3.2	Management of hazardous waste	Management of hazardous waste described in the IHM is carried out adequately. [redacted]	[redacted]
Technical guidance note 2.2.3, MEPC210(63) Section 3.4.3.1, ILO SHG p90: 9.2.3	Management of asbestos	Asbestos is removed by Cherry Waste Management appointed by SRIA to remove asbestos. Cherry Waste Management arrives on-site with a negative pressure van, where they remove asbestos containing materials. [redacted] Asbestos and asbestos containing material (ACM) is delivered to GEPIL. [redacted]	Compliance was confirmed during the site inspection.
MEPC210(63) Section 3.4.3.2	Management of PCBs	The SRFP includes procedures for solid and liquid PCB which are adequate. [redacted]	Compliance was confirmed during the site inspection.
MEPC210(63) Section 3.4.3.3	Management of	During the site inspection, the applicant described that [redacted]	Compliance was

	Ozone-depleting substances (ODS)	[redacted]	confirmed during the site inspection.
MEPC210(63) Section 3.4.3.4	Management of paints and coating including anti-fouling with organotin TBT	The SRFP contains a description of TBT paint and toxic and flammable paints. Reportedly, the applicant removes TBT prior to gas cutting by one of three methods listed in the SRFP. The Antifouling Convention applies to ships and applies to new and sailing vessels. The Convention has been in force for more than a decade. For most ships, except those e.g. in lay-up, two dry-docks would be expected since the entry into force. During dry-dock the hull will be sandblasted, and new antifouling paint is applied to optimise hull performance, hence it is less likely with TBT in anti-fouling. The procedure contains a description to collect slag from cutting of the side shell and double bottom. [redacted]	Compliance was confirmed during the site inspection.
MEPC210(63) Section 3.4.3.5	Procedures for operationally generated wastes	Reportedly, all operationally generated waste is collected and sent to GEPIL. This includes drainage water on-site, bilge, sludge, contaminated sand, incinerator ash, glass wool and [redacted] [redacted]	[redacted]

		[redacted]	
	Perfluorooctane sulfonic acid (PFOS)	The applicant has an adequate procedure for removal of PFOS. [redacted] The authorisation from GPCB makes specific references to the Hazardous And Other Wastes (Management and Transboundary Movement) Rules, 2016, which includes PFOS and other persistent organic pollutants.	Compliance was confirmed during the site inspection.
MEPC210(63) Section 3.4.3.6	Heavy metals (lead, mercury, cadmium and hexavalent chromium)	The SRFP includes a procedure for removal of heavy metals, found adequate. [redacted]	Compliance was confirmed during the site inspection.
MEPC210(63) Section 3.4.3.7	Other hazardous materials in Annex II	The applicant has developed adequate procedures for removal of other hazardous materials in Annex II. [redacted]	Compliance was confirmed during the site inspection.

MEPC210(63) Section 3.4.2.2	Additional sampling and analysis	[redacted]	[redacted]
MEPC210(63) Section 3.4.2.3	Identification, marking and labelling	The applicant ensures identification, marking and labelling per the IHM. The evaluators boarded the vessel under dismantling [redacted] The evaluators witnessed photos from previous vessels.	Compliance was confirmed during the site inspection.
Technical guidance note 2.2.5 (a), MEPC210(63) Section 3.4.2	Transport of waste	Transportation of hazardous waste to GEPIL is by licensed trucks from GEPIL. The vehicles from GEPIL are equipped with GPS and designed per the Transportation guideline of the GPCB: (https://www.gpcb.gov.in/payroll/GUIDELINES_4_PA_OF_RULE_9_HAZ_OTH_WASTE_2016.PDF) A manifest system is used as per the GPCB guideline. [redacted]	[redacted]
Technical guidance note 2.2.5 (c)	Applied process	Please refer to Article 15 (5) below.	
Article 15 (2) (g) confirm that the company adopted a ship recycling facility plan, taking into account the relevant IMO guidelines;			
		Please refer to Article 13 (1) (e) above in this table.	
Article (2) (h): provide the information necessary to identify the ship recycling facility.			
		Please refer to Article 13 (1) (a) above in this table.	

Article 15 (5): For the purposes of Article 13, with regard to the waste recovery or disposal operation concerned, environmentally sound management may only be assumed to be in place provided the ship recycling company can demonstrate that the waste management facility which receives the waste will be operated in accordance with human health and environmental protection standards that are broadly equivalent to relevant international and Union standards.			
Technical guidance note 2.2.5 (c)	Waste management facilities	Ensuring sustainable downstream management of wastes generated by the ship dismantling activities is an important requirement under the EU Ship Recycling Regulation. Section 2.2.5 in the EU Technical guidance note provides specific information on the requirements for non-EU facilities to demonstrate that the waste management facilities follow standards broadly equivalent to international and EU standards. The requirements/standards applied in the waste management facilities must ensure a similar level of protection of human health and the environment as in international/EU standards. The various international and EU standards are listed under section 2.2.5. According to the last revision of the SRFP dated 23.11.2019, the applicant uses the following downstream waste management facilities: [redacted]	[redacted]



Below follows a more detailed description of the various downstream waste management companies based on the information received from the applicant and other sources.

		GEPIL Several types of waste generated by the ship dismantling activities of the yard are transferred to the Treatment Storage and Disposal Facility (TSDF) in Alang. This facility was developed by the GMB and is operated by the Gujarat Enviro Protection Infrastructure Limited (GEPIL). The facility consists of a landfill site, an incinerator and an effluent treatment plant (ETP). The evaluators visited the GEPIL in September 2018 and also in January 2020. GEPIL's permit and its operation was checked against the requirements of the EU Landfill Directive and the EU Industrial Emissions Directive. Details are provided in the following sections. **a. Landfill** The permit specifies requirements and includes references to Indian guidelines/manuals. The permit was checked against Article 9 of the EU Landfill Directive. The landfill has five cells where two are currently in operation: 1. Cell 1 - asbestos containing waste and glass wool – closed 2. Cell 2 - Solid and chemical waste cell – closed 3. Cell 3 - Municipal solid waste - in operation 4. Cell 4.1 - Hazardous waste cell – in operation 5. Cell 4.2 - Municipal solid waste- not in operation The permit includes a list of waste that can be landfilled and their quantities. It is understood that GEPIL does not receive any wastes which are non-acceptable according to the EU Landfill Directive. From the documentation provided by GEPIL on-site during the evaluators' visit in September 2018, it appears that the landfill is constructed in a way to protect soil and water. The landfill has a geological barrier, leachate collection and sealing system. There is	

		a leachate control well for each landfill cell. Specific requirements apply for capping the landfill with compacted soil, HPDE geomembrane, drainage layer, soil and vegetative layer. It is understood that waste disposed of at the landfill is pre-treated, except for asbestos. Asbestos and ACM are immediately covered in concrete in cell 4.1 which is a hazardous waste cell. Asbestos arriving at site shall be wrapped in two layers of plastic. The permit includes requirements for noise. The permit requires (point 5.9) that after closure of a cell, vents shall be installed and regular monitoring of the emission of the vent shall be carried out. [redacted] Based on all the information currently available to the evaluators, it appears that the operation of the landfill likely follow standards broadly equivalent to international and EU standards. The operational landfill Cell 4.1 (Hazardous waste) is close to reaching its full capacity. It is expected to be full by 2022. It is understood that a new land next to the current GEPIL site has been purchased recently for the purpose of constructing additional landfill capacity. It is expected that the construction of the new landfill will take around 1.5 years. **b. Incinerator** The incinerator at GEPIL is designed and developed in association with the KETEK Group from Canada. The permit was checked against the EU Industrial Emissions Directive (IED). The permit includes the waste types and quantities that can be incinerated. The incinerator has a capacity of 5 MT/day and designed to handle solid, semi solid and liquid hazardous wastes. GEPIL and GPCB confirmed that the incinerator is not designed for PCB, brominated flame retardants and other POP waste above the threshold level for hazardous waste.	

		The incinerator at GEPIL has two combustion chambers, primary (approximately 1000°C) and secondary (approximately 1200°C). The incinerator at GEPIL is equipped with a venturi scrubber, packed scrubber and HEPA filter. The permit requires that there shall be no odour nuisance and odour mitigation/control measures shall be taken (point 4.5). The permit does not include the maximum permissible period of any technically unavoidable stoppages, disturbances, or failures of the purification devices or the measurement devices, during which the emissions into the air and the discharges of wastewater may exceed the prescribed emission limit values. Waste gases from waste incineration plants is discharged by means of a stack height of 32.5 m. The permit does not include emission limit values for discharges of wastewater from the cleaning of wastewater as specified in Part 5 of Annex VI of the IED. This should however not be required as the wastewater resulting from the cleaning of waste gases is collected in wastewater tank 1 and 2 and reused in the process, in a closed loop system. Requirements for monitoring of emissions are provided in Article 48 of the IED and it is required that emissions is carried out in accordance with Parts 6 and 7 of Annex VI. Monitoring shall be carried out in accordance with CEN standards or, if CEN standards are not available, ISO, national or other international standards which ensure the provision of data of an equivalent scientific quality. The permit from GPCB does not refer to specific standards, but the third-party monitoring reports refer to Indian standards. Online flue gas analyser is attached for flue gas monitoring (measuring NOx, SOx, HCl, HF, CO, CO_2, SPM etc.), observed on site by the evaluators in September 2018. This continuous emission monitoring system is connected to GPCB for real-time monitoring. The evaluators understand that contracted third parties conduct air quality monitoring on a regular basis and GCPB conducts regular and unannounced monitoring. Under Part 6 in Annex VI of the IED it is stated that for periodic measurements at least three measurement	

		values shall be obtained during each measurement exercise. The evaluators cannot confirm that 3 measurements values are obtained each time. During the September 2018 visit to GEPIL, the evaluators witnessed third party test results on site. Contracted third parties were e.g. a university and the accredited laboratory Pollucon. According to the scope accreditation from NABL, Pollucon is accredited to measure the relevant parameters. The air emission limit values for waste incineration plants in part 3 of Annex VI of the IED were compared with the threshold values for GEPIL in the license from GPCB and found broadly equivalent. The monitoring records seen by the evaluators on site had sometimes found PM_{10} in concentration above threshold limit for shorter periods. Heavy metals had not been measured above threshold level. GEPIL has in addition monitored PCB, brominated flame retardants and other POPs. Indications of these substances were not found during the monitoring period. The evaluators witnessed several monitoring reports from 2019 during a meeting with GEPIL in January 2020. All parameters were within the limits. Based on all the information currently available to the evaluators, it appears that the operation of the incinerator likely follow standards broadly equivalent to international and EU standards. The Japan International Cooperation Agency (JICA) has provided Official Development Assistance Loans for upgradation of environmental management for ship recycling in Alang and Sosiya. Part of the project is to further develop GEPIL. During the meeting with GEPIL in January 2020 it was explained that they would like to upgrade the incinerator to a Rotary kiln in 2-3 years. This would assist GEPIL in expanding their disposal methods to include amongst other ODS and PBB and PBDE in solid material. **c. Effluent treatment plant** GEPIL has an effluent treatment plant to treat wastewater from the recycling yards and leachate water from the landfill. The treatment plant is equipped with an oil and grease trap, followed by an oil skimmer and equalization tank. From this tank the water is pumped	

		to a mixer where chemicals are added to the effluent, among others lime. The water is transferred into the flocculation tank and then to the settling tank. Further on the water is pumped to the aeration tank, then on to the secondary settling tank. The water is then pumped into the treated water storage tank. The daily capacity of the effluent treatment plant is 30K (30 000 litres). The permit includes limit values for emissions to water. The permit requires the facility to online monitor the effluent treatment plant for the following parameters: flow of outlet, pH, TOC or COD and ammoniacal nitrogen. Various monitoring reports were witnessed on site during the evaluators' latest visit to GEPIL in January 2020. Based on all the information currently available to the evaluators, it appears that the operation of the effluent treatment plant likely follow standards broadly equivalent to international and EU standards. [redacted] During the latest meeting with GEPIL in January 2020, it was explained that they have more than sufficient capacity to treat the collected liquids. Storm water records were also witnessed on-site from which it was evident that only a few numbers of facilities actually deliver storm water to GEPIL. The records confirmed that the applicant was among these facilities. Finally, as mentioned previously, the Japan International Cooperation Agency (JICA) is financing an ongoing project for upgradation of environmental management for ship recycling in Alang and Sosiya. Part of the project is to further develop GEPIL. During the meeting with GEPIL in January 2020, it was explained that they would like to expand the ETP. A timeline is yet to be decided.	

[redacted]

It is understood from the SRFP that items containing radioactive substance such as smoke detectors are collected by the [redacted]. Per the license from [redacted]

In the EU the disposal of ionising smoke detectors is regulated by the Directive 2012/19/EU on waste electrical and electronic equipment (WEEE). Disposal of the smoke detector in normal refuse is prohibited by the WEEE Directive. The radioactive source must be removed from the smoke detector before treatment of the WEEE can begin. Based on the licence issued by the AERB, it appears that this is what Cherry Waste Management does, [redacted]

[redacted]According to a document titled 'Policies Governing Regulation of Nuclear and Radiation Safety (July 2014)' available at the AERB website (https://www.aerb.gov.in/images/PDF/Policies_Governing_Regulation.pdf), AERB is in charge of carrying out certain regulatory and safety functions envisaged under Section 16, 17 and 23 of the Atomic Energy Act, 1962. Section 16 and 17 of the said Act pertain to control of radioactive substances and special provisions with regard to safety in production, handling, use and disposal of radiation / radioactive substances respectively in India. Section 23 of the Act deals with administration of the Factories Act, 1948, in the factories owned by the Central Government or any authority or corporation established by it or a Government Company and engaged in the use of atomic energy. The Central Government has appointed AERB as the Competent Authority to enforce the safety related rules under the said Act.

[redacted]

[redacted]

On the webpages of AERB (https://www.aerb.gov.in/english/) the evaluators found a link to '*Wastes from Medical, Industrial and Research Facilities'*, but waste treatment method of radioactive materials could not be found here.

However, the evaluators understand from other local applications that smoke detectors may be sent for safe disposal at Bhabha Atomic Research Centre (BARC). According to the BARC website, management of low-level waste will be stored for 10 to 50 years, which will allow most of the radioactive isotopes to decay. The waste is then disposed of as ordinary waste.

It is understood from the information published on the AERB and BARC websites, that these government bodies follow international standards. Therefore, it can be assumed that the treatment of radioactive materials transferred to AERB/BARC occurs according to standards broadly equivalent to relevant international and EU standards.

Customs

Gaseous ODS are reportedly delivered to Customs while ODS in solid material is sent to GEPIL.

Per the Customs Circular no.20/2009, cylinders with ODS can be disposed of to 8 approved refrigerant filling plants, '*provided they are specifically permitted in writing to decant such gases in approved cylinders by the Chief Controller of Explosives. The intimation to this effect may be given to the Director (Ozone), Ministry of Environment & Forest, who will ensure that the corresponding quantity is accordingly debited from the prescribed quota of the concerned manufacturer*'.

[redacted]

In the EU, Regulation (EC) No 1005/2009 of the European Parliament and of the Council of 16 September 2009 on substances that deplete the ozone layer, lays down rules on the production, import, export, placing on the market, use, recovery, recycling, reclamation and

		destruction of substances that deplete the ozone layer. Per Article 22(2), controlled substances and products containing such substances shall only be destroyed by approved technologies listed in Annex VII or, in the case of controlled substances not referred to in that Annex, by the most environmentally acceptable destruction technology not entailing excessive costs, provided that the use of those technologies complies with Community and national legislation on waste and that additional requirements under such legislation are met. [redacted] [redacted] In the EU, the management of waste oils is regulated by the Waste Framework Directive 2008/98/EC. The management of waste oils should be conducted in accordance with the priority order of the waste hierarchy and preference should be given to options that deliver the best overall environmental outcome. According to the definition under Article 3(18), the "'regeneration of waste oils' means any recycling operation whereby base oils can be produced by refining waste oils, in particular by removing the contaminants, the oxidation products and the additives contained in such oils". Article 21 contains further specific requirements for waste oils. [redacted] [redacted]	

		[redacted] [redacted] In the EU, the management of waste oils is regulated by the Waste Framework Directive 2008/98/EC. The management of waste oils should be conducted in accordance with the priority order of the waste hierarchy and preference should be given to options that deliver the best overall environmental outcome. According to the definition under Article 3(18), the "'regeneration of waste oils' means any recycling operation whereby base oils can be produced by refining waste oils, in particular by removing the contaminants, the oxidation products and the additives contained in such oils". Article 21 contains further specific requirements for waste oils. [redacted] Based on the limited information currently available to the evaluators, it is not possible to conclude that [redacted] follow standards broadly equivalent to relevant international and EU standards. [redacted] In the EU, the general rules concerning the management of waste are laid down in the Waste Framework Directive 2008/98/EC. Specific legislation on waste batteries is embodied in the Batteries Directive 2006/66/EC.	

[redacted]

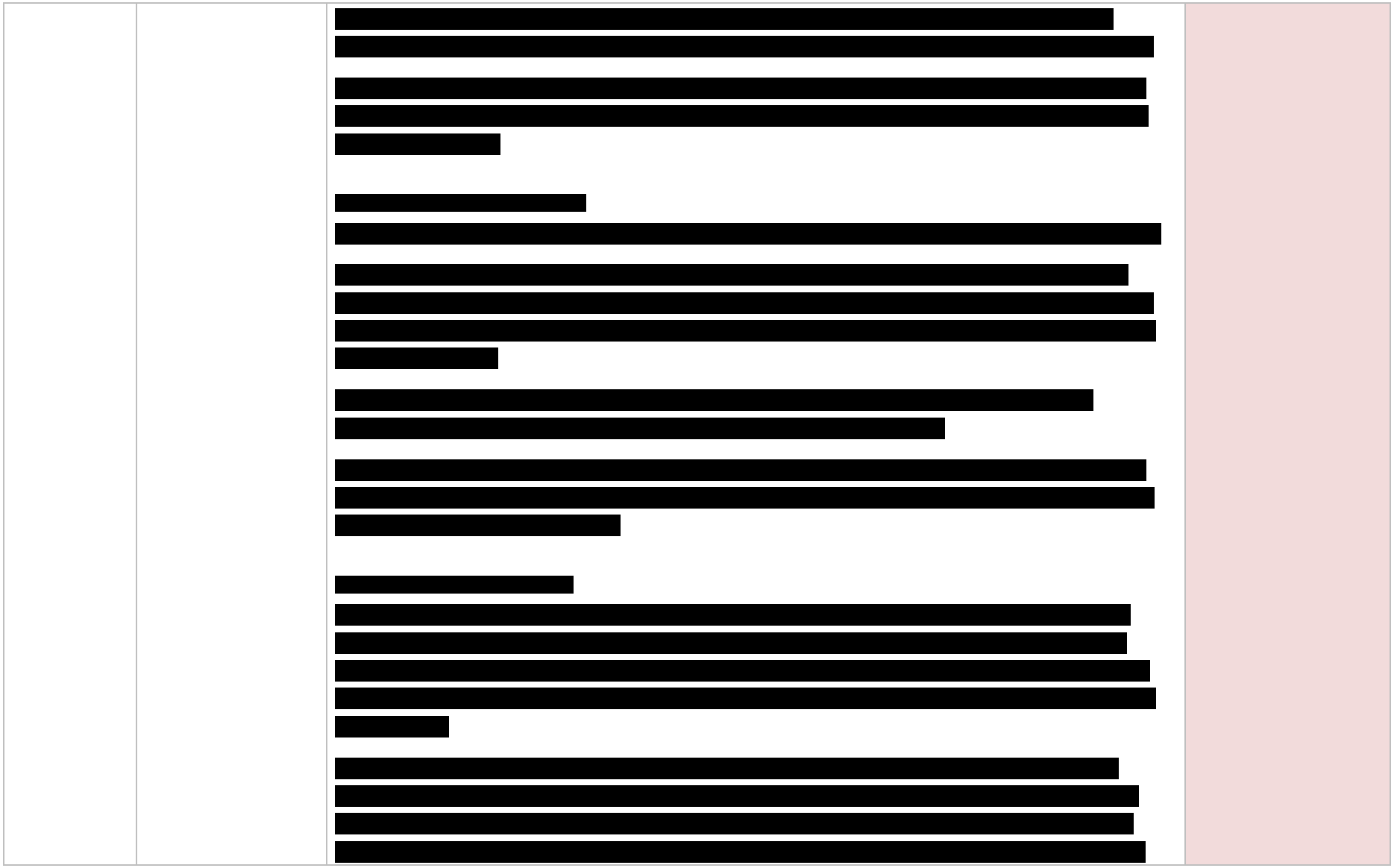
In the EU, the general rules concerning the management of waste are laid down in the Waste Framework Directive 2008/98/EC. Specific legislation on waste batteries is embodied in the Batteries Directive 2006/66/EC.

[redacted]

In the EU, the legislation on E-waste is embodied in the Directive 2012/19/EU on waste electrical and electronic equipment (WEEE). Specific substances listed in Annex VII must be removed from collected WEEE and the operations at treatment facilities must be in accordance with the general requirements under the Waste Framework Directive 2008/98/EC.

[redacted]

		[redacted] In the EU, the legislation on E-waste is embodied in the Directive 2012/19/EU on waste electrical and electronic equipment (WEEE). Specific substances listed in Annex VII must be removed from collected WEEE and the operations at treatment facilities must be in accordance with the general requirements under the Waste Framework Directive 2008/98/EC. [redacted] In the EU, the legislation on E-waste is embodied in the Directive 2012/19/EU on waste electrical and electronic equipment (WEEE). Specific substances listed in Annex VII must be removed from collected WEEE and the operations at treatment facilities must be in accordance with the general requirements under the Waste Framework Directive 2008/98/EC.	



[redacted]

[redacted]

[redacted]

[redacted]

According to Regulation (EU) 2019/1021 on persistent organic pollutants (and the Basel Convention), "*waste consisting of, containing or contaminated by any substance listed in Annex IV to this Regulation shall be disposed of or recovered, without undue delay and in accordance with Part 1 of Annex V to this Regulation, in such a way as to ensure that the POP content is destroyed or irreversibly transformed so that the remaining waste and releases do not exhibit the characteristics of POPs*".

[redacted]

Steel re-rolling mills

It is understood that the applicant is using a number of re-rolling mills to process steel recovered from the ship dismantling process. [redacted]

[redacted]

[redacted]

[redacted]

Further considerations regarding public control over downstream waste management facilities

In order to be able to draw conclusions regarding the extent to which the concerned downstream waste management facilities follow in practice standards broadly equivalent to international and Union standards, the evaluators have also contacted the GPCB to better understand their control and monitoring and enforcement policies.

[redacted]

During a meeting with the GPCB Bhavnagar office on 14th October 2019, it was explained to the evaluators that GPCB Bhavnagar is responsible to monitor approximately 1500 companies. The GPCB Bhavnagar regional office reportedly has 6 persons responsible to follow up these companies, working in 3 teams of 2 people. The evaluators understand that GPCB officers mainly check waste manifest. [redacted] The GPCB Bhavnagar regional office is understood to have a risk-based operation where the companies most likely to pollute are checked more frequently than others. The size of the company is also considered.

[redacted]

7 PHOTOS FROM THE INSPECTION

A selection of photos from the site inspection are presented below.

The facility is a single-yard operation (all activities are performed on the plot – with no backyard)

Oily cutting zone, clear segregation from crane movement zone with curbing marked in black/yellow.

[redacted]

[redacted]

Clear access routes for firefighting and ambulances were observed on-site.

[redacted]

Full PPE was observed to be worn by the workers.

The ship under dismantling had landed at the embankment. Part of the bulb and bow was cut.

Rescue boat. [redacted]

Leela's dormitory complex at the GMB colony

Leela’s dormitory complex at the GMB colony

Leela’s dormitory complex at the GMB colony

APPENDIX 1 GEPIL

Overview of available waste treatments methods available at GEPIL Alang:

GEPIL ALANG
PROTECTING FUTURE

GUJARAT ENVORO PROTECTION INFRA STUCTURE LTD (ALANG-UNIT)

Landfill Cell-1	
Name:	GLASSWOOL & ASBESTOS CELL
Capacity	43,038 CuM
Start Date	October--2005
Close Date	26th May 2013.
Type of Waste:	SS & SLF i.e. Asbestos, Glasswool and other landfillable waste
Current Status	CAPPED WITH PRIMARY SOIL

Landfill Cell-2	
Name:	IND. & CHEMICAL WASTE
Capacity	10,212 CuM
Start Date	October--2005
Close Date	31st Dec. 2011
Type of Waste:	SS & SLF i.e.Glasswool and other landfillable waste
Current Status	CAPPED WITH PRIMARY SOIL

Landfill Cell-3	
Name:	Municipal Solid Waste
Capacity	8,723.00 CuM
Start Date	October--2005
Close Date	In Operation
Type of Waste:	Municipal Solid Waste
Current Status	In Operation

INCINERATOR	
Name:	Incinerator
Capacity	5 MT PER DAY
Construction start	April -- 2013
Constructed Completed	October--2013
Current Status	In Operation
Type of Waste:	Incinerable Waste (Solid/ semisolid & liquid)

Fire Hydrant System	
Tank Capacity	2,00,000 ltr
Status	In Operation.

EFFLUENT TREATMENT PLANT (ETP)	
Name:	Effluent Treatment Plant
Capacity	30 KL per Day
Construction start	June-- 2011
Constructed Completed	April -- 2012
Commissioned on	May -- 2012
Type of Waste:	Bilge Water and waste water from Incinerator,contaminated Rain water, Oil block cleaning water

Landfill Cell 4.1	
Name:	Hazardous Waste Cell
Capacity	70,000 CuM
Construction start	June-- 2011
Constructed Completed	December-- 2012
Commissioned on	27th May 2013 - IN OPERATION
Type of Waste:	LANDFILLABLE WASTE. (Mainly Glasswool and others,) Asbestos is being solidified in one corner of landfill cell.

Landfill Cell 4.2	
Name:	Municipal Solid Waste
Capacity	30,000 CuM
Construction start	June-- 2011
Constructed Completed	December-- 2012
Commissioned on	Commissioned but not in operation as existing cell is in operation
Type of Waste:	Municipal Solid Waste
Current Status	Not in Operation

Salient Features of Incinerator Design
• Design Capacity of 5 MT/Day
• Design developed in association with M/s Westland, Canada
• Capable of Incinerating Solid/Semi Solid/Liquid Hazardous Waste
• Temperature of more than 800 Deg C in Primary & 1100 Deg C in Secondary chambers
• Total residence time of flue gas > 2 seconds in secondary chamber and Breach ducts
• Two stage scrubbing system for effective cleaning of flue gases
• DRE ~ 99.99 %
• Emissions as per CPCB Norms
• Online flue gas analyzer for monitoring the stack gases round the clock

Intermediate Storage	
Use	To store Incinerable Waste (solid ,semi-solid & liquid) Capacity : 1000 MT
Status	In Operation

Photos from GEPIL – Incinerator, landfill, effluent treatment plant, tank truck and trucks.

Incinerator

Incinerator building

Incinerator with primary (lower chamber) and secondary combustion chambers.

Venturi scrubber

Landfill

Landfill Cell 4.1:
Hazardous waste cell

Landfill Cell 4.1:
Hazardous waste cell

Asbestos is solidified in one corner of the landfill cell.

Landfill Cell 3:

Municipal solid waste

Leachate sump

Effluent treatment plant

Water samples taken from different stages of the treatment process.

Sludge drying beds

GEPIL tank truck for liquids (bilge, ballast water, oily water, storm water)

GEPIL trucks

About DNV GL

DNV GL is a global quality assurance and risk management company. Driven by our purpose of safeguarding life, property and the environment, we enable our customers to advance the safety and sustainability of their business. We provide classification, technical assurance, software and independent expert advisory services to the maritime, oil & gas, power and renewables industries. We also provide certification, supply chain and data management services to customers across a wide range of industries. Operating in more than 100 countries, our experts are dedicated to helping customers make the world safer, smarter and greener.