DNV-GL

INSPECTION OF A SHIP RECYCLING FACILITY IN INDIA

Site Inspection Report Application 006

European Commission Directorate-General for the Environment

Report No.: 2019-0050, Rev. 2 **Document No.:** 117PLW2Y-5

Date: 2020-05-08



Project name: Inspection of a ship recycling facility in India **DNV GL AS Maritime** Report title: Site Inspection Report Application 006 **Environment Advisory** Customer: European Commission Directorate-General for the Veritasveien 1 Environment, 1363 Høvik Customer contact: Norway Date of issue: 2020-05-08 Tel: Project No.: 10077072 Organisation unit: Environment Advisory Report No.: 2019-0050, Rev. 2 Document No.: 117PLW2Y-5 Applicable contract(s) governing the provision of this Report: ENV.A.2/FRA/2015/0013 Objective: To document the results of the site inspection at Shree Ram Vessel scrap Pvt. Ltd, following the facility's application for inclusion in the European List of ship recycling facilities. Prepared by: Verified by: Approved by: Principal Consultant Principal Consultant Head of Section Senior Principal Consultant Copyright © DNV GL 2020. All rights reserved. Unless otherwise agreed in writing: (i) This publication or parts thereof may not be copied, reproduced or transmitted in any form, or by any means, whether digitally or otherwise; (ii) The content of this publication shall be kept confidential by the customer; (iii) No third party may rely on its contents; and (iv) DNV GL undertakes no duty of care toward any third party. Reference to part of this publication which may lead to misinterpretation is prohibited. DNV GL and the Horizon Graphic are trademarks of DNV GL AS. DNV GL Distribution: Keywords: ☑ OPEN. Unrestricted distribution, internal and external. Ship recycling, ship recycling facility plan, ☐ INTERNAL use only. Internal DNV GL document. hazardous waste, waste management, ☐ CONFIDENTIAL. Distribution within DNV GL according to health, safety. applicable contract. * ☐ SECRET. Authorized access only. *Specify distribution: 2019-01-21 First issue 2019-02-14 Additional documentation 1 2 2020-05-08 Updated after second inspection

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Photos from the GMB workers colony, the new hospital under development and the firefighting station (March 2019) $\,$ Appendix 1:

Appendix 2: **GEPIL**

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

IMS - The quality management system of Shree Ram

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

PPE - Personal protective equipment

QMS - Quality management system

RPCB - Rajastan Pollution Control Board

SOC - Safety Observation Card

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 at Shree Ram Vessel scrap Pvt. Ltd, located in Alang-Sosiya (Gujarat, India), following the facility's application for inclusion in the European List of ship recycling facilities.

The first on-site inspection took place on the 27th and 28th of September 2018. This was followed by a second inspection on the 11th of October 2019. In the context of the two inspection visits, the evaluators also had separate meetings with the Gujarat Maritime Board (GMB), the Gujarat Pollution Control Board (GPCB), the Ship Recycling Industries Association of India (SRIA) and the Alang Sosiya Ship Recycling and General Workers' Association (ASSRGWA).

During the site inspections, the facility demonstrated that it is approved by its authorities, has a suitable organisation with a proven track record, has sufficient procedures with regards to health and safety and has put in place well-functioning facilities (cranes, paved areas, warehouses etc.). The facility has also made important investments in the last years to upgrade its infrastructure and ship recycling practices.

The governing document for the site inspections, defining the baseline of the facility's performance, was the Ship Recycling Facility Plan (SRFP). A paramount task of the inspections was to verify that the SRFP is a living, logic and systematic document accurately reflecting the operational practices on the ground. During the first inspection, the evaluators could not verify that all procedures and practices observed on the ground were included and explained in the SRFP. In response to this, the applicant significantly updated the SRFP. The revised SRFP, with the updated instructions and procedures, was evaluated during the second inspection and found adequate.

During the first inspection, the facility could not fully demonstrate its ability to sufficiently control leakage, in particular in the intertidal zone. Also, questions remained regarding the facility's compliance with the requirement for handling of hazardous materials only on impermeable floors with effective drainage systems. The main concerns of the evaluators related to the cutting of the ship's double bottom in the intertidal zone. In response to this, the applicant updated the relevant instructions and procedures. During the second inspection, the evaluators verified implementation of the new procedures. It was found that the facility had implemented a good practice and good instructions for the prevention of spills and leakages to the intertidal zone, tank cleaning and slag collection, rendering the topic of protecting the intertidal zone satisfactory to the evaluators.

The evaluators understand that most equipment, lose or fixed, removed from the ship during the dismantling process is sold by the facility for re-use. At the time of the first inspection, no additional sampling regime was in place at the yard to identify equipment potentially containing hazardous materials and not listed in the ship's IHM prior to selling such material for re-use. In response to this, the facility has developed a new systematic sampling regime, which was found adequate during the second inspection.

The facility has also developed a monitoring plan of health risks to workers and adverse effects on the environment. The implementation of these plans was evaluated and found adequate during the inspections.

In conclusion, during the two on-site inspections the facility has demonstrated that it is fully committed to achieving compliance with all the relevant requirements of the EU Ship Recycling Regulation and has made important progress in this respect. However, based on the results of the inspections, there remain the following important areas where the evaluators could not confirm compliance.

- 1. Medical facilities / hospital situation: 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. The lack of adequate medical services and facilities was also revealed in relation to the fatal accident referred to above. It is understood that there was no surgeon available at the new GMB hospital at the time of this accident and therefore the injured person could not be treated there. However, the applicant has reported that the existing facilities at the GMB hospital are continually being upgraded. Reportedly, they have an ICU and a Burn Unit; furthermore, the hospital has tie-ups with Specialty Surgeon from Bhavnagar who would be available on call from Bhavnagar. Moreover, it is understood that the applicant is currently working on further upgradation of the existing health care facilities in Alang, together with other ship recycling facilities. Reportedly, a GAP assessment of existing medical facilities against international/national standards has been organized by medical consultants (Critical Care specialist) and resulted in concrete recommendations for improvements. The evaluators welcome all these measures and efforts of the applicant to improve the hospital situation. However, the evaluators have not seen the actual GAP analysis referred to by the applicant and the resulting recommendations. Furthermore, in the absence of a concrete implementation action plan for the said recommendations, including timeframes and information on the availability of the necessary human and budgetary resources, the prospect of achieving the desired improvements remains unclear.
- 2. <u>Downstream waste management</u>: ensuring sustainable downstream management of wastes generated by the ship dismantling activities is an important requirement under the EU Ship Recycling Regulation. Most of the 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 EU standards. However, GEPIL is not able to handle certain types of wastes (such as e-waste, batteries, POPs etc.) which are therefore transferred to other waste management facilities. Most of the concerned facilities are located in the state of Gujarat and operate under a license issued by the GPCB, which contains specific requirements for emissions to air, water etc. and monitoring requirements. For most of the facilities, the requirements prescribed in the relevant GPCB licenses appear to be broadly comparable to the contents of licenses issued to similar facilities in the EU. However, in order to ascertain whether they follow standards broadly equivalent to international and EU standards in practice, the evaluators would need further information on the actual operation of these facilities, including on their compliance with the specific requirements prescribed in the relevant licences. To this end, the evaluators have also contacted the GPCB to better understand the level of control exercised over the concerned facilities; however, no further information has been received in this respect.

	1

2 INTRODUCTION

The European Commission DG Environment (hereafter referred to as The Commission) has contracted DNV GL to conduct a site inspection of the recycling facility Shree Ram Vessel Scrap Pvt. Ltd, 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 in June 2016 under application number 006.

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 note¹.

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 SITE INSPECTION

The facility Shree Ram Vessel Scrap (plot 78/81) submitted an application for inclusion in the European list of ship recycling facilities in June 2016. Several documents were sent to the European Commission afterwards. Based on this information and an updated SRFP forwarded by the applicant in March 2017, a desk assessment report was transmitted to the facility in July 2018. 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 first on-site inspection of the facility took place on the 27th and 28th of September 2018. The second inspection was carried out on the 11th of October 2019.

The SRF is operating at plots 78 and 81 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.

Shree Ram Vessel Scrap PVT. LTD. & Shree Ram Shipping Industries PVT. LTD. have operated in the ship dismantling industry for several decades and is a family owned business. The Shree Ram group also owns plot no. V7 (first inspected in March 2019 and re-inspected in October 2019).

The main representatives from the facility during the first inspection were
During the second inspection the same
representatives were present except for .
For the first inspection the evaluators from DNV GL were
accompanied by from the EU Commission. For the second inspection the
evaluators from DNV GL were , supported
by an additional consultant growth and accompanied by the from the EU
Commission.
In the context of the first inspection, the delegation visited the downstream waste management facility
Gujarat Enviro Protection and Infrastructure (GEPIL) in the morning on the $26^{ m th}$ of September 2018. The
Gujarat Pollution Control Board (GPCB) was present at the visit, represented by
representatives at the visit were The same day, the
delegation visited the Alang Sosiya Ship Recycling and General Workers' Association (ASSRGWA). The
delegation met with and approximately 20 workers from the ship recycling industry.

In connection with the second inspection, separate meetings with the GMB and GPCB took place in Gandhinagar on the 9th of October 2019. In addition, the inspection team had another meeting with the regional office of the GPCB in Bhavnagar in the evening the 14th of October 2019. Furthermore, a meeting with the ASSRGWA took place again, in the afternoon the 11th of October 2019. And a visit to the new GMB Multi Speciality hospital was also arranged in the afternoon the 14th of October 2019.

The table below summarises the results of the site inspection (also taking account of information sent as a follow-up to the inspections) with respect to article 13, 15 and 16 of the SRR requirements for inclusion of a ship recycling facility in the European List.

DNV GL wishes to thank the management and key personnel at Shree Ram 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 inspect		Compliant?	
Article 13-1	(a) it is authorised b	y 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 implementation of these conditions was checked by the evaluators during the first inspection as far as they were relevant for the application process to the EU list of ship recycling facilities.	Compliance was confirmed during the first site inspection.
Article 13-1	(b) it is designed, co	instructed and operated in a safe and environmentally sound manner	
Technical guidance note 2.2.1	Measures and infrastructure	Measures and infrastructure are in place to prevent leakages to the environment. The facility uses the beaching/intertidal landing method. Primary cutting of the hull is mainly conducted in the intertidal zone using the interior of the ship itself as an impermeable floor. Dismantled materials from the ship to shore are transported by crane, in appropriate containers for smaller parts, without contact with the intertidal zone. All secondary cutting takes place on concrete flooring with drainage. The evaluators witnessed dismantling in the intertidal zone, including the primary cutting of the double bottom from watertight to watertight floor.	Compliance was confirmed during the second site inspection.
		Detailed analysis can be found in the following sections of this report.	
Article 13-1	(c) it operates from	built structures	
Technical guidance note 2.2.4	Operates from built structures	The total area of the plot is 27,000 m^2 ; the front yard is 9,000 m^2 (75 x 120 metres) and the backyard is 18,000 m^2 (150 x 120 metres). The construction of the plot, both the front yard and the backyard, is concrete. The operation on dry shore is from built structures with cranes, winches and trucks on	Compliance was confirmed during the second inspection.
		concrete flooring. The smaller cranes may operate in the intertidal zone.	
		Storage tanks, storage and separation areas, store room and offices, sanitary equipment, workers rest and recreation rooms, drinking water supply and asbestos decontamination unit were identified on site.	

The secondary cutting area and back yard were found covered with impermeable, reinforced concrete.

From the information received after the second inspection, the evaluators understand that the applicant may in the future also want to use crane barges in support of their ship recycling activities and in particular in relation to the dismantling of rigs. The crane barges in question were seen in operation at the applicant's other plot V7. The applicant has provided relevant supporting documentation for the crane barges (incl. operations manual, load testing reports, stability book and NDT of pedestals and cranes). It is however not the role of this assessment to approve the provided documentation. It is for the national authorities to control that the potential use of crane barges complies with the applicable local regulations and has the required certifications.

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

In response to the draft report of the first inspection, the applicant contracted a third party (Central Salt and Marine Chemicals Research Institute) to prepare a monitoring plan of health risks to the population in the vicinity of the ship recycling facility, and adverse effects on the environment.

The results below commented below, represents the first round of sampling conducted by the companies Central Salt and Marine Chemicals Research Institute (CSIR) and Cherry Green Environment. CSIR has prepared the monitoring program on-site, while Cherry Green environment has monitored soil in the surrounding area. It is described in the monitoring plan that this sampling represents a baseline understanding of the conditions at site and that this baseline can be used to monitor operational improvements to reduce or eliminate further pollution.

CSIR is recognized by Ministry of Environment, Forest and Climate Change and the authorization was attached to the first draft of the environmental monitoring plan.

Compliance was confirmed during the second inspection.

Cherry Green Environment is accredited to conduct analyses of heavy metals, PCB, PAH, PBB and PBDE in soil by the National Accreditation Board for Testing and Calibrating Laboratories in India (NABL).

The evaluators asked GMB for further clarifications with regard to the applicable requirements for the companies involved in environmental monitoring of the ship recycling yards. They replied that "per the clause No. 6.4.3 of the Chapter No. VI of the Ship Breaking Code-2013, State Pollution Control Board shall carry out regular monitoring of ambient air, soil, sediment and marine water quality at the Ship Recycling Yard". They added that "For marine water, SW-IV criteria as per the EP act 1986 is applicable for marine water at Alang Sosia region. As far as State Maritime Board concerned, SMB shall carry out twice yearly monitoring through any Council of Scientific and Industrial Research (CSIR) laboratory, Govt. of India or the environmental labs recognized under the Environment (Protection) Act, 1986. Environmental Audit of ship recycling yards are carried out by the Schedule-I/II Environmental Auditors recognized by SPCB."

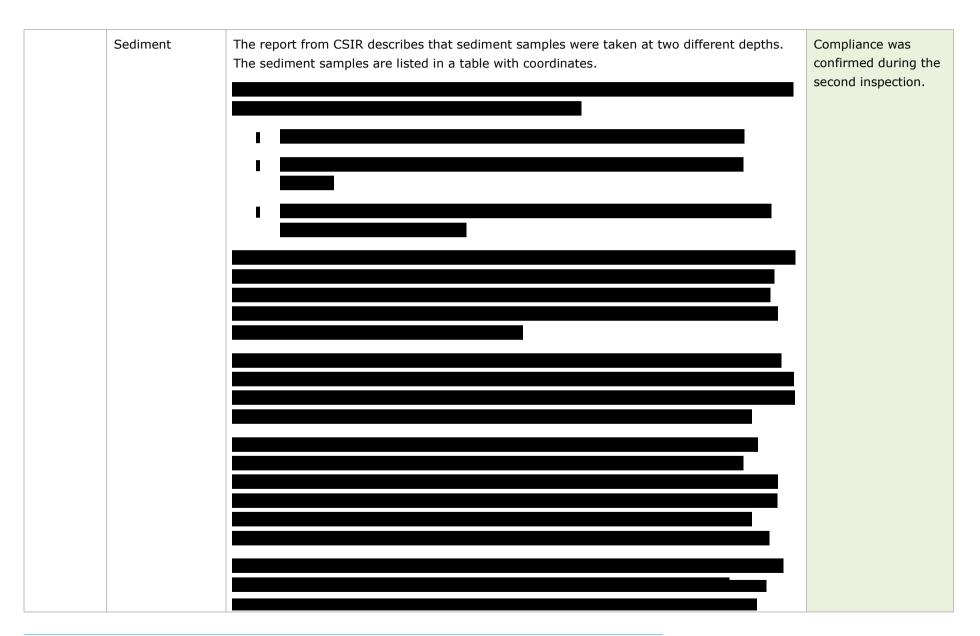
Central Salt and Marine Chemicals Research Institute laboratory is identified as an environment consultant organisation for preparation and presentation of environmental impact assessment report (EIA) and environmental management plan (EMP) by Ministry of Environment and Forest & Climate Change (MoEF&CC). Additionally, CSIR-CSMCRI is accredited by National Accreditation Board for Education and Training (NABET) which is a constituent Board of Quality Council of India to undertake environmental impact assessment (EIA) studies and preparation of environmental management plan (EMP) in four sectors, including ship breaking.

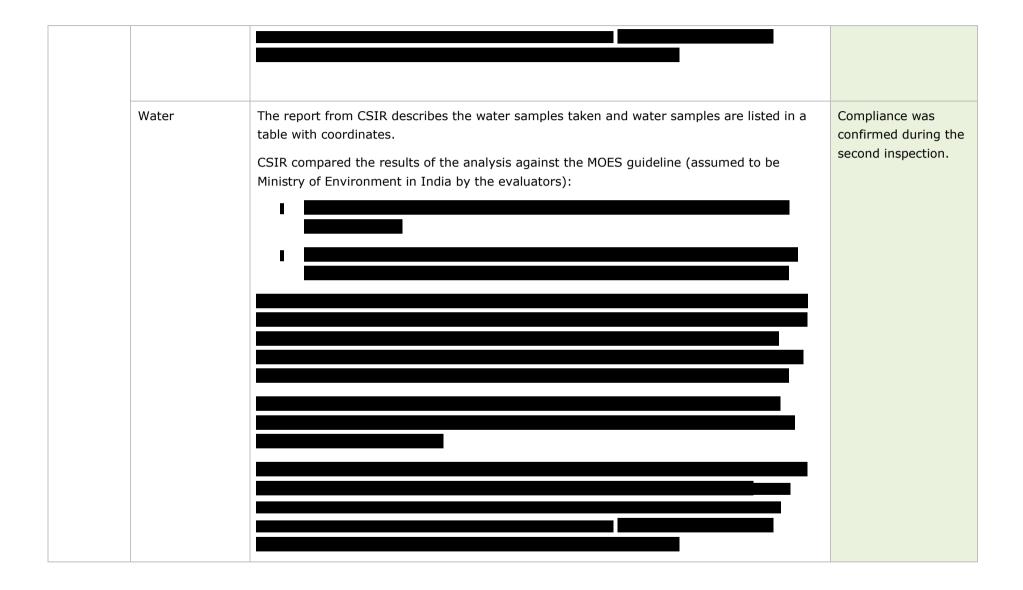
Cherry Green Environment will reportedly no longer for carry out any Environmental or IHM testing with effect from 01/01/2020. Cherry Green is subsequently removed from the list of sub-contractors.

In this context, it should be also 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. GMB replied that the environmental audit will be conducted by Central Salt and Marine Chemicals Research Institute lab.	
Soil	The report from CSIR describes that soil samples were taken at two different depths. The soil samples are listed in a table with coordinates.	Compliance was confirmed during the second inspection.





Air	The report from CSIR presents the outcome of ambient air quality measurements at two locations. The air was monitored for PM ₁₀ , PM _{2.5} , SO ₂ and NO ₂ , all were found below the referred standard. The referred standards are Indian National Ambient Air Quality Standards 2009 (NAAQS), WHO and USEPA.	Compliance was confirmed during the second inspection.
Noise	The report from CSIR presents the outcome of noise measurements at several locations during day and night time. The measured noise was above the referred GPCB standard for several locations both during the day time and night time. The applicant provides hearing protection to its workers which is as a counter measure.	Compliance was confirmed during the second inspection.
Surrounding area	Annexure 1 of the report from CSIR presents the outcome of analysis of fish samples. The fish samples were collected from local markets. The fish was reportedly from Ghogha, a town between Bhavnagar and Alang, and analysed for heavy metals, bacteriology, PAH and PCB.	Compliance was confirmed during the second inspection.

Technical guidance note 2.1.4 (b),	Health	The facility checks its workers for health, and records were witnessed during the first site inspection. However, at the time of the first site inspection the facility did not have an overall health monitoring plan or matrix, with oversight over what tests to be taken of what positions, and at what frequency. After the first site inspection, the applicant forwarded a new SRFP, describing the facility's medical monitoring regime, also including a health monitoring plan along with several worker health reports. The Health Monitoring Plan includes a description of the worker risk assessment.	Compliance was confirmed during the second inspection.
2.1.4 Technical guidance note 2.1.4 (b), MEPC 210(63) 3.1.1 (5), (7) and (8).	ISO certificates /management system/ QMS	The facility holds hold the following ISO certificates: ISO 9001: 2015 by Class NK, valid up to 17/5 2021 ISO 14001: 2015 by Class NK, valid up to 17/5 2021 OHSAS 18001: 2007 by Class NK, valid up to 17/5 2021 ISO 30000: 2009 by Class NK, valid up to 17/5 2021 The facility has an implemented quality management system (facility termed IMS), managed by the HSE Manager in close cooperation with the management. The facility reportedly improves after every internal audit, every third month. The review is based on continuous improvement. During the first site inspection, the evaluators did document spot-checks, including legal register, minutes of Management Review-, Safety Committee- and Worker meetings, IMS updates, incident reports, KPI follow-up, near misses, employee records and suggestion box follow-up, which proved that the facility has a working management system. Records are kept in a designated room. The business manager is keeping the key.	Compliance was confirmed during the first inspection.
ILO SHG p21- 23, p138:18.1, 18.3, p139:18.5	Workers facilities	The workers facility was visited during the first inspection. The facility has dormitories for 182 workers on site, at no cost and with food included. The facility has its own cook. The dormitories are split in four segregated blocks so that workers from the different states, with	Compliance was confirmed during the first inspection.

own cultures, are gathered. In addition, 12 rooms with 12 bunks each (total 144 capacity) were reserved for Shree Ram at the GMB worker's colony, Block 2.

The on-site dormitory had a common mess room, cooking facilities and a "recreation room". Drinking water is provided by a reverse osmosis plant, seen to be visually in good condition. Drinking water was tested by the local public health, but reportedly only for E. Coli. It was the evaluator's opinion that the facility dormitory could be cleaner and have more lighting indoors and be better equipped. Overall the dormitories appeared to be in line with the ILO Helpdesk Factsheet No. 6 Workers' housing'.

The workers elect 5 representatives among themselves, to act as supervisors for the dorms etc.

Article 13 (1) (e) it prepares a ship recycling facility plan

Technical
guidance note
2.1.2

SRFP

During the first site inspection, the SRFP revision No. 1 dated 03.03.2018 was in force, which was not found up to standard with respect to the intention of being a useful and practical instruction for the facility.

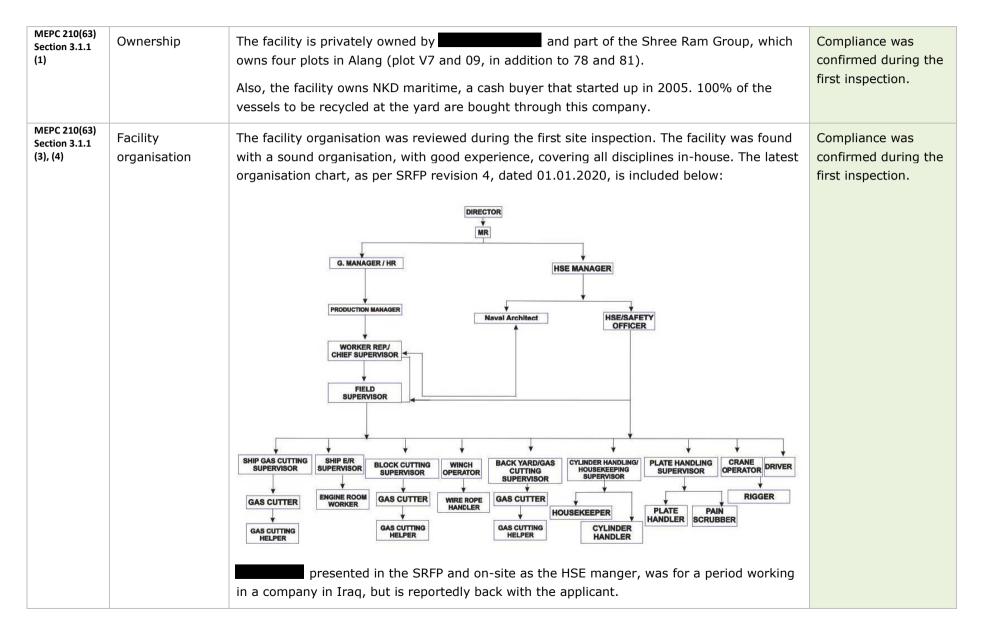
Upfront to the second inspection, the facility submitted a revised SRFP dated 18.07.2019, which was then followed by another revision dated 05.10.2019. The new SRFP was found adequate during the second inspection.

The facility has come far in the development of 3D-modelling cutting plan, where each block is modelled and tagged with weight and IHM data. The models are related to the cutting plan in the SRP, and the cutting lines are marked by painting on the hull accordingly. This is a very good procedure and it was suggested that this could be instructed in the SRFP.

In response to the draft report of the second inspection, the facility issued the SRFP revision 4, dated 01.01.2020, with further updates.

Please see supplementary comments under relevant parts of this report.

Compliance was confirmed during the second inspection.



MEPC 210(63) Section 3.1.1 (4)	Roles and responsibilities	During the first site inspection, the evaluators reviewed the roles and responsibilities. In general, the roles and responsibilities were found well specified in the SRFP, however not fully in line with reality (e.g. there were no naval architects described, and the HSE Manager's description did not include his responsibility for the IMS, including ISO certification). Following the first site inspection, the facility forwarded a revised SRFP, including a new set of roles and responsibilities. This was found overall good and satisfactory. The evaluators suggested responsibilities for the worker welfare, wages, terms and conditions etc. (i.e. the HR parts) to be added to the roles and responsibilities of the top management. This was added under part 3.1.7 of the latest SRFP (revision 4).	Compliance was confirmed during the first inspection.
MEPC 210(63) Section 3.1.1 (6)	Policy	The facility has a health safety and environmental policy included in Section 3.1.10 on page 44 in the latest SRFP.	Compliance was confirmed during the first 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. 	Compliance was confirmed during the first inspection.

- 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 evaluators were told that regular daily working hours were from 08:00 -18:00, with a 2-hour lunch break. Reportedly, over time work happens on a regular basis, depending on the work load (see more on this point below). In addition, the workers have two 30-minute tea breaks, at 10:00 and 15:00 hours. Sundays are totally off, reportedly with no work going on at all.

Based on documentation witnessed on site and interviews with workers, it appears that the applicant ensures that the working hours are according to the Factories Act.

Prior to the first site inspection the applicant forwarded additional documentation to document that workers received paid sick leave (further described in the next row). The additional documentation included the daily work cards of 5 workers for the month of October 2018. The daily work cards showed that the workers did not work on Sundays and that the workers had paid holiday on Mahatama Gandhi's Birthday 2nd of October. The daily work cards showed that these 5 workers worked 1.5-2.5 hours overtime every day during October, except for the days when they reported sick.

Interviews with workers were carried out on-site, without the presence of supervisors and managers. The workers were invited in two groups, so no single worker was targeted.

The workers confirmed that they get paid leave covering 7 national holidays (e.g. 15 August, 2 October, 26 January) and that they are awarded one paid day off for each 20 consecutive working days. During the meeting with the Alang Sosiya Ship Recycling and General Workers' Association (ASSRGWA), which took place on the 11th of October 2019, where several workers were present, the Union representatives stated that none of the Alang shipbreaking yards comply with the relevant legal requirements regarding paid annual leave. This statement contradicts what was observed by the evaluators on-site during the first inspection. Therefore, the evaluators asked for a written confirmation from the applicant that it fully respects all the relevant legal requirements concerning paid annual leave. A written confirmation signed by the managing director was forwarded in response to the draft report of the second inspection. Workers The workers are hired based on sign-on appointment letters by the facility. When asked to Compliance was confirmed during the contracts, see one, this was readily available. second inspection. minimum wages, There is a special salary range for ship recycling employees published in the Gujarat insurance 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 of a fixed minimum amount and a special allowance, which is adjusted every six months. At the time of the second inspection (October 2019), the minimum rates of wages per day (in INR) were as follows: Classes of Employees Basic Minimum Wages Daily allowance Total Skilled 255 47.70 302.7 Semi-skilled 245 47.70 292.7 235 47.70 Unskilled 282.7 During the first site inspection, the applicant provided records upon request showing that the wages paid to their workers were above the minimum rates set out in the Gujarat Government Gazette mentioned above.

Various records were witnessed during the first inspection. The evaluators witnessed records of payslips showing that workers had received overtime payment. The records were signed by the workers or fingerprinted (illiterate). Interviews with several workers, both individually and in groups confirmed this.

The applicant provides ESIC (Employees' State Insurance Corporation) insurance.

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.

Workers sick e.g. with flue reportedly receive paid sick leave from the applicant when not covered by ESIC. Payrolls were spot checked on-site during the first inspection and confirmed that workers had received payment while sick.

Reportedly, none of Shree Ram's supervisors is a member of the Alang Sosiya Ship Recycling and General Workers' Association (ASSRGWA). The applicant did not know if any workers were members of the Union, but the facility employees are reportedly free to join the association.

The applicant has founded their own, internal worker committee union, with elections every six month. Examples of minutes of meeting from the worker committee were witnessed on site.

During the meeting with the Alang Sosiya Ship Recycling and General Workers' Association (ASSRGWA), which took place on the 11th of October 2019, where several workers were presents, the Union representatives stated that none of the Alang shipbreaking yards comply

		with the relevant legal requirements regarding paid sick leave and overtime compensation. This statement contradicts what was observed by the evaluators on-site during the first inspection. Therefore, the evaluators asked for a written confirmation from the applicant that it fully respects all the relevant legal requirements concerning paid sick leave and overtime compensation. A written confirmation signed by the managing director was forwarded in response to the draft report of the second inspection.	
MEPC 210(63) Section 3.1.1 (7)	Instructions and procedures	Procedures were reportedly developed in-house, mainly laid down in the SRFP. The governing document for the site inspections, defining the baseline of the facility's performance, was the Ship Recycling Facility Plan (SRFP). A paramount task of the inspections was to verify that the SRFP is a living, logic and systematic document accurately reflecting the operational practices on the ground. During the first inspection, the evaluators could not verify that all procedures and practices observed on the ground were included and explained in the SRFP. In response to this, the applicant significantly updated the SRFP. The new SRFP, with the updated instructions and procedures, was evaluated during the second inspection and found adequate. Instructions and procedures pertaining to the dismantling of rigs at distance at initial landing, in particular special measures for intertidal zone protection, fire and medical evacuation were asked to be further elaborated in the SRFP. The SRFP received after the draft report of the second inspection has been updated in this regard in Chapter 3.6.13 and Chapter 5.4.1.	Compliance was confirmed during the second inspection.
MEPC 210(63) Section 3.1.4	Project management progress reporting	Progress reporting is carried out in accordance with ship-owner requirements. The amounts of waste are monitored. However, no regular progress report as such was witnessed during the first site inspection. The facility does not operate with project managers, the management team with its supervisors manage the projects ad-hoc as needed.	Compliance was confirmed during the first inspection.

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: 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

Intertidal zone

Control of leakage

Preventive actions

The primary cutting is not operated from a built structure, also including the cutting of the double bottom. In dismantling ships, the facility considers the hull itself as the built structure. This either by letting the blocks fall into the ship then to be lifted by crane across the intertidal zone to the impermeable secondary cutting zone, or by hooking up the blocks by crane before final cut, lifting them directly on shore without letting them fall. During the second site inspection, it became apparent that the facility utilizes the barge from plot V7 as needed.

During the first site inspection the facility presented an informative ppt / pdf presentation of the de-bunkering, cleaning and cutting methodology, with photos and diagrams. The explanation included what tools and equipment was used, and what standards and criteria were applicable. However, the facility could not fully demonstrate its ability to sufficiently control leakage, in particular in the intertidal zone. Also, questions remained regarding the facility's compliance with the requirement for handling of hazardous materials only on impermeable floors with effective drainage systems. The main concerns of the evaluators related to the cutting of the ship's double bottom in the intertidal zone. The slicing of the double bottom is carried out from one watertight bulkhead to the next. The applicant was asked to include detailed instructions and method of closing openings in non-watertight double bottom floors.

Following the first site inspection, the applicant forwarded clarification documents including new procedures. The instructions were found satisfactory, however handling sediments in tanks was not directly mentioned.

The documentation explained that before and after emptying and de-bunkering, the tanks (both oily and ballast) are sounded. The tanks are then sprayed with water jet. After the pumping of flushing water into drums sent to GEPIL, the facility workers spray sawdust all over the tanks, followed by sand. After some absorption time, the sand and sawdust were collected manually by brushes and scoops and put into bags, then sent to GEPIL. The GPCB

Compliance was confirmed during the second inspection.

/GMB inspects the tanks, before the facility gets the cleanliness report and cutting permission.

During the second site inspection, the evaluators witnessed the cutting of the double bottom and lower bow tip of a large container vessel. The facility also had a cut diving vessel under dismantling. It was noted that during the cutting and pulling for the vessel in the intertidal zone, the vessel had a medium aft trim, raising the cut double bottom above the high tide water level. This mitigated the risk of high tide washing into the double bottom tanks and facilitated the placement of slag catchers under the ship's bottom. Smaller vessels, such as the diving vessel, can be pulled beyond the drain line for double bottom cutting, which is a very good improvement. The evaluators could conform the implementation of critical issues pertaining to cutting in the intertidal zone and the protection against leakages and debris; slag collectors were used and appeared to be efficient, openings in the double bottom were closed by welded plates in order to prevent the washing of double bottom tanks during high tide, and the tanks were cleaned to an acceptable standard.

As many in the Alang cluster, the applicant suffers from pollution and debris originating from neighbouring yards with less environmental performance washing up on their plot at every tide cycle. The applicant has acquired a beach cleaning machine and kept daily records of cleaning efficiency. The evaluators noticed that it was significantly more debris at this plot than the other Shree Ram plot. The applicant was asked to look into how they can further improve the situation. Reportedly the applicant will continue to conduct daily beach cleaning, both manually and with beach cleaning machine.

For the initial dismantling and lightening of rigs when landed far from shore and crane's reach there were no instructions in the SRFP or information demonstrated particular to the protection of the intertidal zone at distance from the shore, a distance that could be up to 900 metres. It was assumed by the evaluators that the methods of slag collection, debrisand spill control was practiced as at the shore line, the dismantled- and cut parts craned on to the barge that then was winched to shore. The evaluators advised that the process of protecting the intertidal zone during the initial dismantling of rigs landed at distance, including the barge landing and subsequent transport to the shore, should be instructed in

		detail in the SRFP. The latest SRFP (revision 4) forwarded by the applicant in response to the second site inspection describes the relevant procedures (ref. SRFP Attachment 7, titled Barge Procedure).	
-		ment of all hazardous materials present on board during the entire ship recycling process so as t	•
		ronment; and in addition, the handling of hazardous materials, and of waste generated during t	ne ship recycling
-	y on impermeable f	loors 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 front yard secondary and backyard cutting areas were seen with impermeable concrete flooring, partly covered in steel plates, with surrounded curbs and drains. In general, the facility was found in tidy, swept and orderly condition.	Compliance was confirmed during the first inspection.
Technical guidance note 2.2.2, MEPC210(63) Section p34: 3.4.4.1	Drainage	The secondary cutting area in the front yard and the backyard has effective drainage systems, which was witnessed during the first site inspection. During the first site inspection, the secondary and back yard impermeable cutting areas were seen with curb stones, drainage and collecting tanks. The front yard has a 13,000 litres contaminated water tank and a 20,000 litres rainwater tank. The water in these tanks is transferred to a 46,000 litres oily water tank. From there the water is transferred to GEPIL trucks. During the first site inspection, the evaluators questioned the coaming height around some areas. Considering the ability to contain heavy monsoon rainfall, the coaming height seemed low in some places area around the drum store and the machinery storage area. Also, some of the drain strainers seemed small. According to the applicant, no rainwater is discharged to the environment, and that overflow should not be a concern, and that there was not much rain in the region. Hence, no sampling regime was implemented. During the second site inspection, the drain line from the impermeable secondary cutting zone facing the dry beach was inspected. The evaluators found the drain holes to be too small and scarce, hence easily clogged and apparently not sufficient to accommodate worst case rainfall. The coaming height of the drain was apparently too low. The applicant advised they would investigate this and revert.	Compliance was confirmed after the second site inspection.

		In response to the draft report of the second inspection, the applicant informed that they have increased the height by 1 feet and forwarded photos (ref. Attachment 6) showing increased height and larger drain holes.	
Technical guidance note 2.2.	Wastewater treatment plant	The drain water stored in tanks on-site are emptied by trucks and delivered to GEPIL. Reportedly, GEPIL has one truck to cover the whole of Alang-Sosiya, which appears to offer quite limited coverage, especially during the monsoon season. This tank truck collects bilge, oily water, ballast water from all plots in addition to storm water. 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. Reportedly, the applicant may call in third party tankers and transfer the water to another facility (instead, in the case GEPIL truck is unavailable.	Compliance was confirmed during the first inspection.
	Impermeable floors	The impermeable concrete floors were seen intact and solid during both inspections. During the first site inspection, it was observed that the facility had extended the impermeable area closer to the intertidal zone.	Compliance was confirmed during the first 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 glass wool, plastics, chemicals, paint chips and batteries respectively, were inspected and found suitable, very clean, but more or less empty.	Compliance was confirmed during the first 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 waste 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'.

Prior to the first site inspection, most materials and equipment, lose or fixed, had been reportedly removed and sold. The evaluators found this practice problematic since the applicant at that time did not ensure that these materials/equipments were free from hazardous waste (e.g. carpets were sold to traders, broken parts sent to GEPIL, electronic equipment was sold to traders, short cables were sold to authorized dealer Sanyja Traders, long cables reused).

During the first site inspection, it became clear to the evaluators that the applicant mainly relied on the IHM, and had not considered the presence of e.g. PBDE, PBB, HBCDD, PCN, SCCP and PFOS prior to selling material and equipment (e.g. flooring had only been checked for the presence of asbestos prior to reselling, but not for other substances).

Hazardous materials described in the IHM are removed and sent to waste management facilities authorised by GPCB.

At the time of the first site inspection, firefighting foam had been resold by the applicant without ensuring the lack of presence of PFOS.

In response to the draft report of the first site inspection, the applicant explained that "the new Vessel "FSO ABU" has landed in the yard on last week of October. Samples for HBCCD, PFOs, PCN, PBB's, SCCN and other related hazardous materials will be collected and sent for sampling. If any of these hazardous materials are identified, the SRF will dispose of to the concerned disposal facility".

In response to the first site inspection, the applicant forwarded additional documents and clarifications, including an additional sampling for hazardous materials procedure. The

Compliance was confirmed during the second inspection.

Technical	Wasto disposal	applicant also forwarded the results of the additional sampling of two different vessels. The additional sampling has been conducted by a third-party while the samples have been analysed by the The implementation of the new procedure was verified during the second inspection by evaluating additional samples and the results, and found adequate. Please refer to comments under sections on Article 15 (2)(f) below with respect to further details on waste management.	Compliance was				
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. /	Waste disposal	Please refer to Article 15(5) below.	partly confirmed after the second inspection				
•	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/	Emergency preparedness plan	During the first site inspection, the applicant presented a revised EPRP, which was seen as an improvement compared to the previous version forwarded during the desk assessment phase. However, the revised EPRP still looked like a template-based document and not up to the required standards. Upfront of the second site inspection, the applicant forwarded a further revised EPRP, which was discussed during the second site inspection. The EPRP was improved, but still not up to	Compliance was confirmed after the second site inspection				

ILO SHG p32: 4.6, p 49: 7.1.8, p 128:16.		the required standards. The evaluators suggested to build the EPRP into a clear instruction for all employees and stakeholders (e.g. avoid repeats, generalities and appendices). Following the second site inspection, the applicant forwarded a revised EPRP (rev. 5 dated 15.10.2019), which was found acceptable.	
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. During the inspections, it was observed that the facility largely complies with these requirements. The facility has clear and amply marked emergency access and evacuation routes, marked as yellow lines. An assembly station was clearly marked. Signage was found good.	Compliance was partly confirmed during the inspections

MEPC 210(63) Section 3.2.1	Access and logistics within facility,	Access to the ship, and within the facility for ambulances and fire trucks was found good and well-marked.	Compliance was confirmed during the first inspection.
Technical guidelines 2.1.4 (b), MEPC 210(63) Section 3.2.1,	Medical services and facilities	At the time of the first inspection, the facility had a medical room suitable for treating minor injuries and first aid. They also had a van, equipped with some medical equipment, but could not be described as a proper ambulance as per definition. It was not manned with a paramedic, and hence initial treatment could not be provided (e.g. stabilising with	Compliance was partly confirmed during the second site inspection.

3.3.5, ILO SHG, Section 3.6

electrolyte, pain injections). There was no doctor employed at the facility. The evaluators found the medical services insufficient.

Upfront of the second site inspection, the applicant had invested in a fully equipped ambulance and contracted a paramedic and doctor, which are shared with the other Shree Ram facility at plot V7. In addition, the applicant has installed a completely new medical emergency healthcare unit within the yard (with emergency equipment, small pharmacy, beds etc.) – it is operational since August 2019.

While the above described medical services and facilities provided by the yard are certainly welcome, it must be noted that the lack of adequate hospital facilities in the Alang area remains an issue, which has not been resolved.

At the time of the first site inspection, the only hospital in the region was in Bhavnagar (55 kilometres away via a main road with a high traffic load). In March 2019, the evaluators visited the newly inaugurated GMB Multi Speciality hospital in Alang, which was found in very early stage of development, only capable of minor consultancies.

During the second site inspection, the new GMB Multi Speciality hospital was re-visited and seen in operation. The hospital is run by the Red Cross. Even though surgical equipment, including an operating theatre, is available, the hospital has only limited emergency capabilities. 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. Discussions with the Workers Union (ASSRGWA) also confirmed that this hospital has inadequate capacity for the whole Alang workforce and lack of capacity to treat serious injuries. The GMB expressed, during the meeting in Gandhinagar on the 9th of October 2019, that the hospital would be further expanded and that the numbers of doctors would increase. When this is expected to happen is not clear to the evaluators.

The regional hospital facilities options were further investigated by the evaluators. The public hospital in Bhavnagar seems to be the only hospital in the region capable of 24/7 emergency surgical capability, however the evaluators have not been there. It takes approximately 1.5 hours to reach the hospital in Bhavnagar. This is problematic in emergency situations.

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, 1983-2013' 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.

In response to the draft report of the second inspection, the applicant provided further useful information regarding ongoing efforts to improve the local hospital situation. The applicant reported that "The existing facilities at the GMB hospital are continually being upgraded. They now have an ICU and a Burn Unit; furthermore, the Hospital has tie-ups with Specialty Surgeon from Bhavnagar who would be available on call from Bhavnagar."

Moreover, it was reported that the applicant is working on further upgradation of existing health care facilities in Alang, together with other ship recycling facilities. In this respect, it is understood that a GAP assessment of existing medical facilities (Alang and GMB Hospital) against international/national standards has been organized by medical consultants (Critical Care specialist) and resulted in concrete recommendations for improvements. Reportedly, "The SRF is spearheading an initiative to invest in upgrading the facilities at Alang Hospital in consultation with the above Critical Care specialist in order to upgrade facilities available to level that most injuries are completely treated at Alang and the few critical patients are adequately stabilized and then sent to specialty hospitals without increasing risk to them." The applicant further explained that "Work force trained in trauma care would be available in

		hospitals. Hospitals in Alang will have tie ups with Tertiary hospitals in Bhavnagar and Ahmadabad for training and support in case of emergency." The evaluators welcome all the above measures and acknowledge the efforts of the applicant to improve the hospital situation in Alang. However, the evaluators have not seen the actual GAP analysis referred to by the applicant and the resulting recommendations. Furthermore, in the absence of a concrete implementation action plan for the said recommendations, including timeframes and information on the availability of the necessary human and budgetary resources, the prospect of achieving the desired improvements remains unclear to the evaluators.	
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, the evaluators deemed the facility 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." The evaluators are unaware that the applicant would have received any penalties for non-compliance with regulatory health and safety requirements.	Compliance was confirmed during the first inspection.

		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_2018General_and_Social_Sector_Government_of_Gujarat.pdf) indicating that the safety inspections in Alang carried out 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 have 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 accidents.	
MEPC.210(63), Section 3.1.1	Regulatory requirements fire	The facility's fire safety regime including prevention and mitigation was deemed to be good, and in accordance with regulatory requirements. worker safety and training, including ensuring the use of personal protective equipment for oper	Compliance was confirmed during the first inspection.
use;) (i) it provides for w	vorker sarety and training, including ensuring the use of personal protective equipment for oper	ations requiring such
Technical guidance note 2.3.1	Safety inspectors on site	HSE management and supervisors were identifiable on the premises in way of green helmets and marked overalls.	Compliance was confirmed during the first inspection.
Technical guidance note 2.3.2	Condition of safety equipment	In general, the standard and condition of safety equipment was found good.	Compliance was confirmed during the first 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 first site inspection, as well as the training matrix with type and frequency of training for each employee.	Compliance was confirmed during the first 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 and has to sign on, before commencement.	Compliance was confirmed during the first inspection.
Technical guidance note 2.3.3, MEPC 210(63) Section 3.1.2/3.2.2	Safety induction, visitors	The evaluators were subjected to safety induction on arrival the first day and provided with PPE for the site inspection. The PPE consisted of safety shoes, helmet, high visibility vest, safety glasses, dust mask and gloves. Safety induction was provided to the evaluators during the second site inspection as well.	Compliance was confirmed during the first inspection.
Technical guidance note 2.3.3, MEPC 210(63) Section 3.1.2/3.2.2	Risk Assessment	The applicant has a risk assessment and job hazard assessment procedure, shown to the evaluators on-site during the first site inspection. The procedure is adequate.	Compliance was confirmed during the first inspection.
MEPC 210(63) Section 3.1.2	Hazardous waste handling training	During the first inspection, certificates were provided for the HSE Manager and HSE Supervisor, from genuine institutes. Training certificates for the handling of hazardous materials for workers were mostly absent, except for ODS training. On request, the applicant provided an overview of the hazmat experts that on a day to day basis remove hazmat from the vessels. According to this, external trainings (in the form of a 1-day course) could only be provided for two out of 8 asbestos workers. The other workers are trained internally and may remove asbestos after internal training only. The applicant explained that it was difficult to ensure up to date training, due to the fluctuations of employees. It became clear that only minimal training was provided for asbestos removing workers, which was considered inadequate by the evaluators. The facility's response to this non-compliance was to send 13 employees, 5 management / officers and 8 asbestos workers on 2-day training in asbestos handling.	Compliance was confirmed during the second inspection.

		Furthermore, prior to the second inspection, the applicant had sent management representatives and workers from plot 78/81 and V7 on a 4-day hazmat course in March 2019. Certificates for the participants were forwarded for review and found adequate.	
MEPC 210(63) Section 3.3.5	Ship access control	The facility has a Persons On board (POB) system, where the workers have to deposit a work card before going on board.	Compliance was confirmed during the first inspection.
MEPC 210(63) Section 3.3.4.5	Prevention of falling from heights	Training was in force, records of training were witnessed on site. The cut-away exposed deck edges of the vessel under dismantling during the first inspection were seen fitted with plastic band barriers on stanchions.	Compliance was confirmed during the first inspection.
MEPC 210(63) Section 3.3.4.1.8	Safety signage on site	Overall safety signage found good to very good.	Compliance was confirmed during the first inspection.
MEPC 210(63) Section 3.3.4.1.8	Safety signage on vessel	During the second site inspection, the evaluators were on board the vessel and safe for entry signage were observed on board.	Compliance was confirmed during the second inspection.
MEPC 210(63) Section 3.3.4.6	Lifting equipment and instructions Cranes	The yard appeared to have adequate lifting safety regime. According to the records, the cranes were tested by Dharmendra Vora and Associates. The yard had additional procedures for testing and certifying equipment compared to other local applications. All test results were accompanied with photos and dates of the actual inspection. This is very welcomed and show that the applicant is more advanced than other local applications.	Compliance was confirmed during the first inspection.
MEPC 210(63) Section 3.3.4.6	Crane operators' certification	Crane operators are trained and certified. Relevant documents were witnessed during the first inspection and found in order.	Compliance was confirmed during the first inspection.

Directive 2006/42/EC	Lifting equipment, authorization	Found adequate.	Compliance was confirmed during the first inspection.
MEPC 210(63) Section 3.1.2	Training of forklift operator	N/A.	N/A
MEPC 210(63) Section 3.1.2	Certification/trai ning 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 first inspection.
MEPC 210(63) 3.4.3	Cutting procedures	The cutting procedures were found adequate, including securing against bouncing.	Compliance was confirmed during the first inspection.
MEPC 210(63) Section 3.3.4.3 / ILO SHG: p108ff:13.	Steel cutting machines	The cutters use manual torches with loose, portable gas bottles stored in racks.	Compliance was confirmed during the first inspection.
ILO SHG: p67:7.2.4.4, p108ff:13.	Winches, mooring gear.	The pulling winches and mooring chains were found in good condition and well anchored. Chains load tested in Mumbai. Photos from the testing were presented during the first inspection. No issues were observed with regards to certificates and tests.	Compliance was confirmed during the first inspection.
MEPC 210(63) Section 3.3.4.6.	Ropes/chains/ slings	The records for chains and slings were witnessed and found in order. The yard had additional procedures for testing and certifying equipment compared to other local applications. All test results were accompanied with photos and dates of the actual inspection. This is very welcomed and show that the applicant is more advanced than other local applications.	Compliance was confirmed during the first inspection.

		It was remarked by the evaluators that no procedures for such testing and recording could be found in the SRFP. The facility promised to rectify this and the latest SRFP briefly mentions examinations under section 3.6.8. It was further clarified by the applicant that "The yard does not carry out testing and examination of load test for ropes, chains and slings. The competent third party is responsible for carrying out the test who are authorised by DISH to carry out testing of these materials. Hence, the testing procedure cannot be mentioned in the SRFP as it is carried out by the third party competent person." Still, the evaluators consider that the SRFP could beneficially include some further details on what the facility does and what are the responsibilities of the competent third party certifying the equipment.	
MEPC 210(63) Section 3.3.4.8	Maintenance and decontamination of tools and equipment	In general, all equipment including cranes and engines were serviced by a third-party supplier. Records were witnessed and checked during the first site inspection.	Compliance was confirmed during the first inspection.
ILO SHG 16.1.6	Eye-wash	The facility has a proper and clean eye-wash station, with water supply from the potable water intermediate storage tank.	Compliance was confirmed during the first inspection.
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 first inspection.
MEPC 210(63) Section 3.3.4.7	Housekeeping and illumination	Housekeeping and illumination were found adequate / good, except for the dormitories, where it was noted that cleaning and lighting could beneficially be upgraded. The applicant was asked to inform if any upgrades have been initiated. In response to this, the applicant reported that solar lights have been provided in case of emergencies in the dormitories as well as battery operated lights.	Compliance was confirmed during the first inspection.

ILO SHG: p49: 7.1.7	Instructions and signage	Signage, both informative and safety, at the facility was observed as good to very good.	Compliance was confirmed during the first inspection.
Technical guidance note 2.3.3, MEPC 210(63) Section 3.1.2 ILO SHG: 8.8	Fire station manning, fire- fighters	The facility did not have a fire station and rely on the Alang fire brigade in case of a bigger or escalating fire. Mock fire drills with search and recovery are held regularly at the facility, however not with involvement of the Alang fire brigade. The facility maintains 4 firefighting teams, in addition to a support team due to the fluctuation of migrant workers. The team leaders of the emergency response teams + a supporter (can be called in case of absence) were trained in a 7-day advanced firefighting course in Mumbai. Certificates were presented on site to the evaluators during the first inspection.	Compliance was confirmed during the first inspection.
		The facility had no foam tank, only water and portable extinguishers, relying on the Alang fire brigade in case of a bigger or escalating fire. The facility also had a good number of fire sand buckets, readily filled.	
ILO SHG: p 82- 84: 8.8	Fire station equipment	The evaluators visited the Alang fire station on the 13 th of March 2019, finding it in fair condition with untidy and dirty equipment storage, including hoses mixed used / unused, and locked away firefighting equipment. There was one fire truck in operation, one water truck and one smaller vehicle, while a number of fire trucks were deteriorating in the backyard, some of them designated for auction.	N/A
		No fireman outfits were readily stored on the trucks for rapid response, they had to be retrieved from the store and un-bagged. The accumulated dust on the bags revealed they had not been used for a while. Reportedly, the firefighters may use the firefighting equipment at the yards.	
		While the existence of a well-functioning fire brigade is not a requirement in the ILO, IMO or in the EU Commission's technical guidelines, the evaluators noted that the fire brigade did not seem to be fully equipped to deal with a major fire accident in the Alang-Sosiya ship breaking area.	

MEPC 210(63) Section 3.3.6, ILO SHG: 8.8.11	Fire alarm system on shore	The facility fire and emergency alarm is the same alarm as they use for teatime and lunch break, the latter only lasting for 5 seconds. The alarm does not notify the Alang fire brigade.	Compliance was confirmed during the first inspection.
ILO SHG: 8.8.11	Fire alarm system on vessel	There were reportedly no fire alarms on the vessel, however the alarm system onshore is loud.	Compliance was confirmed during the first inspection.
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 well implemented. The SRFP describes a daily fire prevention check. Otherwise, general training on fire prevention and mitigation for all workers is in place.	Compliance was confirmed during the first inspection.
MEPC 210(63) Section 3.3.6, ILO SHG 13.4.5	Combustible materials and hot-work	The facility has an instruction that all combustible materials are to be stripped from the vessel before steel cutting. What remains is insulation and paint that may burn.	Compliance was confirmed during the first 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. The liquid oxygen is however centralized. The tank was checked and found to be in good condition during the first site inspection. AC/OX hoses, connections and gas manifolds were found in adequate / good condition. Watchmen were seen posted by the manifolds, on the cart of portable gas bottles. The gas bottle store was observed and found tidy and in good condition during the first site inspection.	Compliance was confirmed during the first inspection.
MEPC 210(63) Section 3.3.4.4	Transporting/sto ring flammable gases	The bottles were transported on site on carts of acceptable quality.	Compliance was confirmed during the first inspection.

MEPC 210(63): p21: 3.3.5, p23: 3.3.6	Fire hydrants	Hydrants and hoses were observed on site and found in good working condition. Lockers were provided for the hoses.	Compliance was confirmed during the first inspection.
ILO SHG: p83: 8.8.10	Fire extinguishers	Extinguishers were seen all over, and spot checked for expiry date. All were found in order.	Compliance was confirmed during the first inspection.
MEPC 210(63): p22: 3.3.6, ILO SHG: p82: 8.8.3	Smoking areas	Smoking is not allowed within the premises of the facility.	Compliance was confirmed during the first inspection.
	Security management	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.	N/A
	Access control to facility; security patrols	The facility is 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 both the main facility and the back yard through a guarded, heavy main gate, covered by CCTV.	Compliance was confirmed during the first 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:	Training	The evaluators recommended the facility to tidy up and organize the SRFP training instructions, so that they reflect the facility's actual training plans and records, which by the first site inspection proved to be quite good. It was however noted that only two of the asbestos removal workers were trained in asbestos removal. Upfront of the second inspection, a revised SRFP was issued, with much improved content on the training programme under Part 3.2.	Compliance was confirmed during the second inspection.

figure 1, p84: 6.1, 6.2,		During the second inspection, training was further discussed. It was however still unclear to the evaluators how the training regime was implemented in practice, in the absence of an inhouse HSE Manager. The applicant was asked to explain how trainings are conducted if the HSE manager is absent. In response to the draft report of the second inspection, the applicant reported that any member of the HSE Team can train workers as long as they fulfil the trainers' qualification requirements set out in section 3.2.3.1.3 of the SRFP. The applicant further explained that "Any new member who joins the HSE Team is first trained by the HSE Manager. The training modules for the HSE team is different than of the workers. After the training is conducted by the HSE Manager, he shall take an examination of the HSE team member and only after which when the HSE team member clears the exam he shall be allowed to carry out the training for the workers."	
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 first site inspection. This was further confirmed during the second site inspection. The workers had readily available PPE, at no cost. The workers advised that they had no problems or restrictions in acquiring new PPE when needed, including breathing mask filters which they normally changed when they felt it starting heavier to breath, normally every second week. The supervisors had the routine of checking worker PPE during the morning toolbox talk. The PPE storage / outlet was witnessed during the first inspection and found to be in acceptable condition, but with somewhat low lighting. During the first inspection, the evaluators questioned why the helpers of the cutters were not equipped with similar masks as the cutters. The clarification documents received after the first inspection advised that 3M 6000 series half faced masks with 2091 cartridges were being provided to gas cutters. Evidence was attached.	Compliance was confirmed during the second inspection.

It was however still unclear to the evaluators what type of assessment the applicant performed to identify the nature of hazards and the exposure upfront of choosing the 2091 cartridges.

Upfront of the second site inspection, the SRF issued a revised SRFP, including a risk assessment. Part 3.6.11.1 depicts a PPE matrix, where 2091 masks are specified for. The 2091 cartridges are adequate for welding and cutting fumes. According to 3M Cartridge and filter guide (https://multimedia.3m.com/mws/media/51890/3m-particulate-filter-2091-p100.pdf), the 2091 cartridge can be used for welding and torch cutting and can be used for metal fumes produced from welding, brazing, cutting and other operations involving heating of metals.

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	During the first site inspection, the evaluators did not find the medical monitoring of workers fully satisfactory. The applicant immediately started to rectify this. Worker exposure and medical monitoring is addressed in chapter 3.6.12 of the revised SRFP. The facility conducts general worker health checkup and HazMat team health checkup. Examples were witnessed on-site during the second site inspection. Each worker shall have the following medical check-ups: blood test, urine test, lead check in blood, spirometry, ECG, chest X-ray and audiometry. For the hazmat team, the medical monitoring additionally includes x-ray of lungs, hemogram, electrocardiogram and lung function test.	Compliance was confirmed during the second inspection.
	Incident monitoring and reporting	The facility has a working regime of reporting and recording incidents and accidents, logged and followed up, with designated responsible person and due date for implementation of mitigations and improvement. The regime is called "Safety Observation Card" (SOC) which constitutes a simple and readily available way of reporting and is part of the IMS. It is reportedly the HSE Manager who issues SOCs. Recent SOCs were reportedly also discussed in the morning toolbox talks.	Compliance was confirmed during the first inspection.

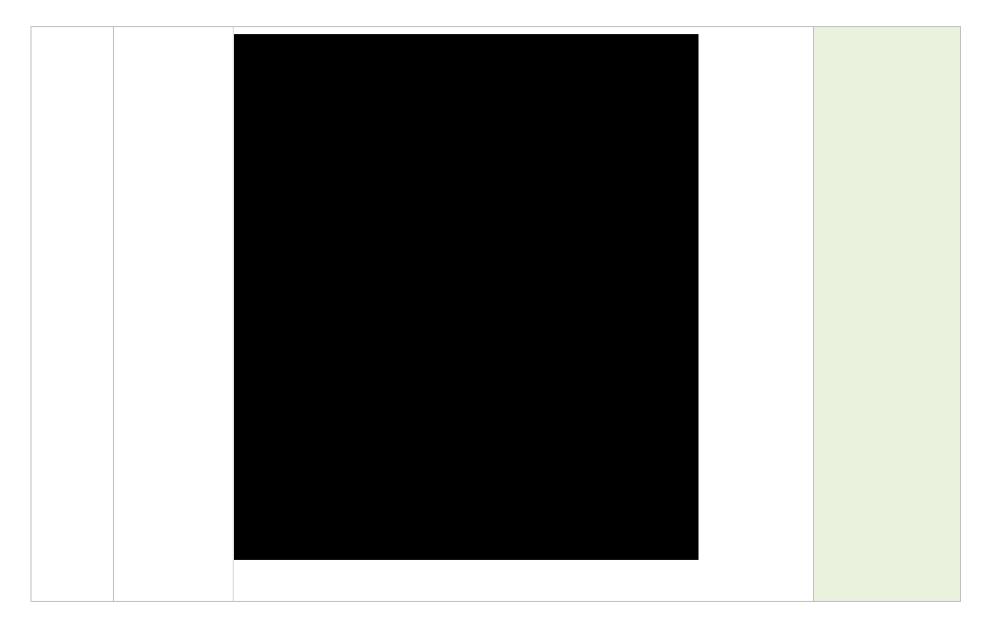
	Reportedly, over 300 SOCs had been submitted since 2017, which is much more than the evaluators have experienced at any yard or facility.	
	The magnitude of SOCs demonstrates a diligent HSE management; minor incidents and near misses were reported. All reporting is however from the HSE officer, no reporting from other workers. The SOCs enhance the overall safety level at the SRF, however the actual impact on worker safety is difficult to measure without a deeper study as the workers are migrating and fluctuating. The regime is nevertheless a good start and initiative for further future improvement.	
Statistics	Reportedly, no major or minor accident or injuries occurred in 2017 and 2018.	Compliance was confirmed during t first inspection.
Near-miss reporting	During the first site inspection, the facility was observed with a good near-miss reporting regime, reportedly with about 130 near miss reports in 2018, which is very high by any industrial standard in this region. By spot-check a few near miss reports were observed during the first site inspection. Near misses are also reportedly discussed in the toolbox talks. A suggestion box was in place, reportedly in good use.	Compliance was confirmed during t first inspection.
Non- conformance procedures	Non-conformities are normally directed via the Safety Observation Card (SOC) regime and handled directly via a spreadsheet. The sheet does not contain corrective actions but reportedly they are handled on the spot and discussed in toolbox talk. In case of recurring	Compliance was confirmed during t first inspection.
	incidents, training is enhanced accordingly. All the non-conformities shown during the first site inspection where on the same date, but	

	HSE Incentives	The applicant has an incentive and reward policy. The SRFP states: "• Verbal recognition • Providing career advancement opportunities • Cash bonuses • Award Certificates • Trophy • Merchandise / Tools • Lunches and Dinners Shree Ram Group recognizes and promotes positive safety behaviour and supports its employees in creating a happy and healthy atmosphere in the workplace that enables employee and company success." The "cash bonus" is in reality the regular pay 20% legal premium. During the first site inspection, the yard presented pictures of an employee receiving a trophy for extraordinary	Compliance was confirmed during the first inspection.
	Corporate social responsibility	performance. Other benefits were not investigated on-site. The facility did not have an actual corporate social responsibility (CSR) statement or policy in place but was expressively opposed to child labour.	N/A
		of a ship recycling facility shall send the ship recycling plan, once approved in accordance with Ai For a recognised organisation authorised by it;	ticle 7(3), to the ship
MEPC 210(63) Section 3.2.4, 3.4.2.1	Ship recycling plan	During the first site inspection, the evaluators witnessed a ship recycling plan (SRP), which was found acceptable. The SRP is forwarded to GMB. It was recommended to the facility to ensure that future SRPs are aligned with the revised SRFP.	Compliance was confirmed during the first inspection.

Article 13 (2) (b): report to the a	administration that the ship recycling facility is ready in every respect to start the recycling of the	e ship;	
MEPC 3.2.3- 3.2.6	Ready for recycling certificate	The facility has experience in running projects in line with IMO/EU Regulation procedures with IHM Part 1,2 and 3 and an SRP. 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;	The evaluators are of the impression that the organisation can easily adapt to new legal regimes.	
		 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. 		
partial recyc	cling in accordance vor the ship. The stat	l or partial recycling of a ship is completed in accordance with this Regulation, within 14 days of with the ship recycling plan, send a statement of completion to the administration which issued ement of completion shall include a report on incidents and accidents damaging human health	d the ready for recycling hand/or the Compliance was	
MEPC 210(63) Section 3.2.7	Statement of completion	The applicant provided a statement of completion for a vessel in the application file.	confirmed during the	
	Lessons learned	No particular lessons learned session was reported to take place after each project. It was understood by the evaluators that the usual non-conformance / SOC regime was in place as lessons learned reporting scheme.	first inspection.	
	Suggestions for improvements	See above comments on SOC regime.		

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);

MPPC 210(63) p8: 3.1.2, p10: Sub-contractors Sub-contractors The applicant was asked to update the list of sub-contractors to include all relevant sub-contractors, including traders coming on board to purchase removable equipment/items. A revised list of sub-contractors is presented on page 79 of the latest SRFP (dated 01.01.2020), copied for ease of reference: Compliance was confirmed during the second inspection.	Technical guidance note 2.2.1, MEPC 210(63) Section 3.2.2	Authorisation	Thoroughly checked during the document review. Updated authorisations are attached in the latest SRFP. The GMB license expires 30.09.2020 and GPCB license expires 25.11.2023. These licenses are regularly renewed.	Compliance was confirmed during the first inspection.
	MEPC 210(63) p8: 3.1.2, p10: 3.2.2 / BC TG:	Sub-contractors	contractors, including traders coming on board to purchase removable equipment/items. A revised list of sub-contractors is presented on page 79 of the latest SRFP (dated	confirmed during the



ЛЕРС.196(62) ection 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 are of the impression that
		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 organisation can easily adapt to new legal regimes.
ecycling fa	cility operates, inclu	recycling; (b) the type and size of ships that can be recycled; (c) any limitation and conditions uding as regards hazardous waste management; (d) details on the explicit or tacit procedure, as a recycling plan by the competent authority; (e) the maximum annual ship recycling output.	
	Method of recycling	The operation is by intertidal landing.	Compliance was confirmed during the first inspection.
	Type and size of	The facility can reportedly dismantle all ship types.	Compliance was
	ships that can be recycled	Maximum ship dimensions:	confirmed during the first inspection.
		- LDT: 90 000 LDT	
		- Length: no limit	
		- Width: 120 metres	
		- Draught: no limit	
	Any limitation	The limitations and conditions under which the facility operates are included in the relevant	Compliance was

	Maximum annual ship recycling output	Plot 78 achieved its maximum annual capacity in 2014 with 58 561 LDT, while plot 81 achieved its maximum annual capacity in 2017 with 34 248 LDT. The two plots were originally operating separately, but now they work combined. Thus, the combined maximum annual capacity is 92 809 LDT.	Compliance was confirmed during the first inspection
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 Re	gulation;
	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. The document is dated 29.06.2016	Compliance was confirmed during the desk assessment.
•	• • •	nce that the ship recycling facility is capable of establishing, maintaining and monitoring of the superstance of the superstan	afe-for-hot work and
HKC: p14:	y criteria throughou		
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 fulfilling and in good order.	Compliance was confirmed during the first 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 c	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	Multiple drawings were witnessed by the evaluators during the first site inspection. Correspond to the landscape and facility lay-out, containing all safety equipment and information.	Compliance was confirmed during the first site inspection.
Article 15 (2) specify:) (f) for each hazard	ous material referred to in Annex I and additional hazardous material which might be part of th	e structure of a ship,
(i) whether t		cility is authorised to carry out the removal of the hazardous material. Where it is so authorised ut the removal shall be identified and evidence of their competence shall be provided;	, the relevant

MEPC 210(63) Section 3.1.3, 3.1.4	Workers' certificates/ licences	Workers' licences and certificates were sport checked and found in order during the second site inspection.	Compliance was confirmed during the second inspection.
(ii) which wa	aste management p	rocess will be applied within or outside the ship recycling facility such as incineration, landfilling	or another waste
	<u>-</u>	nd address of the waste treatment facility if different from that of the ship recycling facility, and	provide evidence that
	process will be carri	ed out without endangering human health and in an environmentally sound manner;	
MEPC.210(63), Section 3.1.1	Regulatory requirements	The main requirements applying for shipbreaking activities under Indian law are currently set out in the Shipbreaking Code 2013.	Compliance was confirmed during the
	environment	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).	second inspection.
		The applicant reportedly follows the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships and the EU Ship Recycling Regulation.	
		Reportedly, the GMB distributes circulars regarding legal updates. When asked to see the applicants legal register this was readily available, however it did not include references to the Stockholm Convention, the Basel Convention, the Minamata Convention or the EU Ship Recycling Regulation.	
		During the first inspection, it was observed that the practices followed by the facility for handling of waste and reselling of equipment possibly containing hazardous materials were not in line with the requirements of these Conventions.	
		Upfront of the second inspection the applicant had updated its procedure and contracted a third party to assist in additional sampling. The implementation was verified during the second inspection by evaluating additional samples and the results. Please refer to the row on 'waste management' above.	

Technical guidance note 2.1.4, MEPC210(63) Section 3.4.1, Appendix 1, BC TG Executive summary (p1), 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,	Environmental management	The environment officer has the overall responsibility.	Compliance was confirmed during the first inspection.
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. It must be noted, however, that the quality of the IHMs the evaluators have reviewed varies. Some IHM relies only on documents and no samples, some IHM relies on samples but only for substances listed in Annex I, while other IHMs include samples for both Annex I and II substances. This means that the ship recycling facility must have additional measures to identify hazardous materials possibly on board and not listed in the IHM. In response to the draft report of the first inspection, the applicant prepared an additional sampling program supported with the result of additional sampling of the vessel under dismantling at the time of the second site inspection. The new regime was found adequate.	Compliance was confirmed during the second inspection.
Technical guidance note 2.2.3, MEPC210(63) Section 3.4.3.1, ILO SHG p90: 9.2.3	Management of asbestos	The yard has an adequate procedure in the SRFP. The applicant has an asbestos decontamination unit onshore, witnessed on-site and found good. The asbestos procedure describes removal of asbestos on the vessel as well as in the asbestos de-contamination unit.	Compliance was confirmed during the first inspection.
MEPC210(63) Section 3.4.3.2	Management of PCBs	PCB was banned in many countries during the 1980s and have been globally banned since 2004. Due to that, it is less likely to be found on board vessels built after the mid-1980s. For a risk-based approach it is important to take into consideration building year and country.	Compliance was confirmed during the second inspection.

		The applicant will reportedly not accept a vessel for dismantling if the IHM describe that it contains PCB. In the event that the applicant finds PCB onboard a vessel that was supposed to be PCB free per the IHM, the applicant has developed a procedure for removing PCB. The applicant has reportedly never found or removed PCB. If PCB materials are found, the facility	
MEPC210(63) Section 3.4.3.3	Management of Ozone-depleting substances (ODS)	During the first site inspection, the applicant described that a subcontractor removes all the gases on board. ODS is reportedly sent to Customs, except for Halon which is reportedly Sampling results were witnessed upfront of the second inspection.	Compliance was confirmed during the second inspection.
MEPC210(63) Section 3.4.3.4	Management of paints and coating including anti-fouling with organotin TBT	Reportedly, the applicant does not remove paint. If described in the IHM, paint may be removed from the cutting line. Slag is collected. The Antifouling 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. Also, ships with TBT are	Compliance was confirmed during the first inspection.
MEPC210(63) Section 3.4.3.5	Procedures for operationally	Reportedly, all operationally generated waste is collected and sent to drainage water on-site, bilge, sludge, contaminated sand, incinerator ash and glass wool.	Compliance was confirmed during the second inspection.

	generated wastes	The applicant has initiated a procedure for sediments in ballast tanks. Samples will be taken and analysed by third party. The samples will be tested for the parameters in the D2 standard of Ballast Water Exchange Management (Toxicogenic Vibrio Cholerae, Escherichia Coli, Intestinal Enterococci and heavy metals). The implementation of this procedure was witnessed on-site.	
	Perfluorooctane sulfonic acid (PFOS)	The applicant has reportedly never found or removed PFOS. If found, these materials will reportedly be sent to In reply to the draft report the applicant replied, "For the vessels in which we get HKC based IHM, we will be taking additional samples and if we come across any PFO's we will send it to ". The applicant has developed a new procedure. The implementation was evaluated during the second inspection and found adequate.	Compliance was confirmed during the second inspection
MEPC210(63) Section 3.4.3.6	Heavy metals (lead, mercury, cadmium and hexavalent chromium)	Mercury containing equipment is reportedly stored in heavy metal storage room and complete equipment is sold to reseller. Reselling Mercury containing equipment to a third party which is not an authorised dealer is not in line with the provisions under the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016. During the first inspection, the evaluators were told that Lead acid batteries are resold by some workers and that they were sent to approved GPCB facilities by others. The authorisation from GPCB includes requirements for handling of lead acid batteries (listed under Schedule IV/Sr. No 17 in the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016). Used batteries shall reportedly be collected and only sent to registered recyclers/re-processers. On-site, the evaluators could not witness that this has been fully implemented or enforced. In response to the first inspection (and the inspection of the other Shree Ram facility located at Plot V7), the applicant has developed new procedures describing in more detail the disposal routes in accordance with the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016. Reportedly, as per the revised SRFP, lead acid	Compliance was confirmed during the second inspection

		batteries are only sent to the authorised dealer . The implementation of the new procedures was evaluated during the second inspection and found adequate.	
MEPC210(63) Section 3.4.3.7	Other hazardous materials in Annex II	During the first inspection, it was mentioned that the applicant had reportedly never found or removed PBB, PBDE, HBCDD, PCN and SCCP. If found, these materials will reportedly be sent to the second inspection, the applicant had prepared an additional sampling regime, trained several of its workers and submitted several test results for sampled materials. The samples were taken of relevant equipment/materials.	Compliance was confirmed during the second inspection
MEPC210(63) Section 3.4.2.2	Additional sampling and analysis	At the time of the first site inspection, the facility had only relied on the IHM before re-selling equipment. In response to the draft report of the first site inspection, the applicant replied that they would take additional samples on the newly arrived vessel FSO Abu. Upfront of the second inspection, the applicant had prepared an additional sampling regime, trained several of its workers and submitted several test results for sampled materials. The samples were taken of relevant equipment/materials.	Compliance was confirmed during the second inspection
MEPC210(63) Section 3.4.2.3	Identification, marking and labelling	The applicant ensures identification, marking and labelling per the IHM.	Compliance was confirmed during the first inspection.
Technical guidance note 2.2.5 (a), MEPC210(63) Section 3.4.2	Transport of waste	Transportation of hazardous waste is by licensed trucks from 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. During the first site inspection, it was unclear to the evaluators if other waste (e.g. lead acid batteries) was transported by licensed trucks.	Compliance was confirmed during the second inspection.

		In response to the draft report of the first site inspection the applicant replied that "We have started recommending our sub-contractors to install GPS in the transportation truck for transporting hazardous materials". The applicant has initiated GPS tracking of hazardous waste and during the first site inspection at the applicant's other plot V7 in March 2019, the evaluators witnessed the	
		system on-site. This was also confirmed in relation to plot 78/81 during the second inspection.	
Technical guidance note 2.2.5 (c)	Applied process	Please refer to Article 15 (5) below.	
Article 15 (2) (g) confirm that th	ie company adopted a ship recycling facility plan, taking into account the relevant IMO guideline	s;
		Please refer to Article 13 (1) (e) above in this table.	
Article (2) (h): provide the infor	mation necessary to identify the ship recycling facility.	
		Please refer to Article 13 (1) (a) above in this table.	
may only be waste will b	assumed to be in p	of Article 13, with regard to the waste recovery or disposal operation concerned, environmental place provided the ship recycling company can demonstrate that the waste management facility dance with human health and environmental protection standards that are broadly equivalent trds.	which receives the
Technical guidance note 2.2.5 (c)	Waste management	Ensuring sustainable downstream management of wastes generated by the ship dismantling activities is an important requirement under the EU Ship Recycling Regulation.	Compliance was partly confirmed after
	facilities	Section 2.2.5 in the <u>EU Technical guidance</u> 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	the second inspection

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 latest version of the SRFP forwarded to the evaluators after the second inspection, the applicant currently uses several subcontractors involved in the downstream management of wastes leaving the SRF. These facilities are listed in the table below. It is noted that some changes have been made after the second inspection, notably the applicant reportedly do not longer use Based on the latest information received, it appears that these facilities have been replaced with In addition, it is understood that the applicant has started using although this facility is not listed among the sub-contractors in the latest SRFP.

Below follows a more detailed description of the various downstream waste management companies based on the information received from the applicant and other sources. 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 facility consists of a landfill site, an incinerator and an effluent treatment plant (EFP). The evaluators visited the site in September 2018 and also in January 2020. 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 does not receive any wastes which are non-acceptable according to the EU Landfill Directive.

From the documentation provided by 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.

The permit requires regular monitoring of ground water and ambient air quality. However, it does not specifically define within which intervals this regular monitoring is carried out.

Some monitoring reports were witnessed on-site during the evaluators' visit in September 2018. The evaluators understand that contracted third parties conduct monitoring and GCPB conducts regular and unannounced monitoring of

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 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 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. If 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 has two combustion chambers, primary (approximately 1000°C) and secondary (approximately 1200°C). The incinerator at secondary (approximately 1200°C). The incinerator at secondary (approximately 1200°C).

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 32.5m.

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, CO2, 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. It is suggested that this is confirmed by a follow up meeting at by receiving additional information from GPCB.

During the September 2018 visit to , 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 in the license from GPCB and found broadly equivalent.

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 . During the meeting with January 2020 it was explained that they would like to upgrade the incinerator to a Rotary kiln in 2-3 years. This would assist in expanding their disposal methods to include amongst other ODS and PBB and PBDE in solid material. According to the Central Pollution Control Board Guideline, a Rotary kiln is required for disposal of these substances.

c. Effluent treatment plant

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 in January 2020.
Based on all the information currently available to the evaluators, it appears that the operation of the effluent treatment plan likely follow standards broadly equivalent to international and EU standards.
During the latest meeting with in January 2020, it was explained that they have more than sufficient capacity to treat the collected liquids. Storm water records also were witnessed on-site from which it was evident that only a few number of facilities actually delivers storm water to 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 Sosiva. 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. It is understood from the SRFP that items containing radioactive substance such as smoke detectors are collected by the licensed subcontractor Per the license from the Atomic Energy Regulatory Board (valid until 20.08.2021) is authorised to 'separate the radioactive source part for volume reduction'. Subsequently, the radioactive materials are handed over to the Atomic Energy Regulatory Board (AERB) for final disposal. 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 does. However, the evaluators have not received information on how or where dispose the smoke detectors after removal of the radioactive source. In addition, questions remain concerning the final disposal of radioactive materials transferred to AERB. It appears that AERB is not a waste management facility but a central government organisation. 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.

Hence, it remains unclear to the evaluators which processes and waste treatment methods apply with respect to the disposal of radioactive materials containing wastes collected by Cherry Waste Management and reportedly transferred to AERB.

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

It is understood that oily products are sent to for refining. The applicant has forwarded the authorisation issued by GPCB, which is valid until 2025.

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.

The GPCB authorisation forwarded by the applicant is based on the provisions of Hazardous And Other Wastes (Management and Transboundary Movement) Rules, 2016, which is the national implementing legislation for the Basel Convention.

According to the authorisation, requirements apply for type of fuel to be used, installation and operation of air pollution control measures on the thermic fluid heater and boiler with specific emission limitations, and limitations for ambient air emissions. The quantity of industrial effluent shall reportedly be evaporated in the evaporation system after appropriate treatment and be zero. For the thermic fluid heater, boiler and ambient air the facility is required to report on particular matter, SO_2 and NO_x .

The applicant visited and prepared a report. It is understood that the said visit took place on 01 July 2017. The report refers to the IMO MEPC.210(63) Guidelines and GPCB standards.

Monitoring results of flue gas emission dated July 2018, treated effluent dated July 2018 and October 2018 by were also forwarded by the applicant. It was questioned by the evaluators if this company was accredited. Later on, the applicant forwarded new monitoring results from which is accredited by NABL for ambient air and noise monitoring.

For the ambient air monitoring, the duration of the sampling was 8 hours in May 2019 and the results were compared to the permissible limit for 24 hours average in the GPCB license. The measured PM_{10} emissions was below the permissible limit of the 24 hours average, but above the permissible annual limit. The evaluators noted that depending on the operational hours of the facility, the annual permissible limits set out in the permit may have been exceeded. Therefore, the applicant was requested to forward information on how the measured emissions compare to the annual permissible limits.

In response to the draft report of the second inspection, additional monitoring results from Unistar were forwarded for May and December 2019. The evaluators have assessed these monitoring results and have the following observations:

According to the GPCB authorisation, the ambient air quality shall conform to the following standard:

Pollution parameter	Time weighted average	Concentration in ambient air ug/m ³
SO ₂	Annual	50
	24 hours	80
NO ₂	Annual	40
	24 hours	80
PM ₁₀	Annual	60
	24 hours	100
PM _{2.5}	Annual	40
	24 hours	60

Monitoring results May 2019

The monitoring result for ambient air for May 2019 shows for 'near main gate' that the PM_{10} concentration was measured to 92.5 ug/m^3 , measured for 8 hours duration. This is below the permissible 24 hours average concentration, but above the permissible annual average concentration. The $PM_{2.5}$ concentration is below the permissible 24 hours average concentration, but above the permissible annual average concentration. The measured concentration of SO_2 and NO_2 are both below the permissible 24 hours and annual average concentration.

For 'near waste storage area', the PM_{10} concentration was measured to 86.4 ug/m3, measured for 8 hours duration. This is below the permissible 24 hours average concentration, but above the permissible annual average concentration. The $PM_{2.5}$ concentration is below the permissible 24 hours average concentration and the permissible annual average concentration. The measured concentration of SO_2 and NO_2 are both below the permissible 24 hours and annual average concentration.

The results of the monitoring of the stack attached to the thermic fluid heater show concentrations below the permissible limits.

The results of the monitoring of the stack attached to the boiler show concentrations below the permissible limits.

The results of the noise monitoring are below the permissible limits.

Monitoring report December 2019

The monitoring report for ambient air for December 2019 for 'near main gate' shows that the PM_{10} concentration was measured to 74.3 ug/m^3 , measured for 8 hours duration. This is below the permissible 24 hours average concentration, but above the permissible annual average concentration. The $PM_{2.5}$ concentration is below the permissible 24 hours average concentration and the permissible annual average concentration. The measured concentration of SO_2 and NO_2 are both below the permissible 24 hours and annual average concentration.

For 'near waste storage area', the PM_{10} concentration was measured to 64.8 ug/m3, measured for 8 hours duration. This is below the permissible 24 hours average concentration, but above the permissible annual average concentration. The $PM_{2.5}$ concentration is below the permissible 24 hours average concentration and the annual average permissible concentration. The measured concentration of SO_2 and NO_2 are both below the permissible 24 hours and annual average concentration.

The results of the monitoring of the stack attached to the thermic fluid heater show concentrations below the permissible limits.

The results of the monitoring of the stack attached to the boiler show concentrations below the permissible limits.

The results of the noise monitoring are below the permissible limits.

Based on the information currently available to the evaluators it appears that operates according to the requirements set out in the GPCB license for the

emission limitations for the thermic fluid heater and boiler and ambient air. The noise levels were also within the prescribed limitations. Based on all the information currently available to the evaluators, it appears that likely follow standards broadly equivalent to relevant international and EU standards. At the time of the second site inspection, the applicant was reportedly transferring waste batteries and accumulators to Shital Metal Alloys (India) Pvt. Ltd. and Kaycee Industries. However, in response to the draft report of the second inspection the applicant informed that they are no longer using these facilities and now transfer waste batteries to 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. After the site inspection, the applicant forwarded a copy of a registration issued by the dated 12.08.2018. According to the registration from is a lead/lead alloys plant authorized to recycle lead acid batteries and lead scrap into lead and lead alloys pure lead, lead oxide and lead sheet. The authorization from has been received from other local applications. authorisation is based on the provisions of Hazardous And Other Wastes (Management and Transboundary Movement) Rules, 2016, which is the national implementing legislation for the Basel Convention. According to the authorisation, the evaluators have the understanding that several furnaces: Barton furnace, red lead/litharge furnace, refinery furnace and rotary furnace, with specific emissions limitations. Furthermore, specific requirements apply for trade effluent and ambient air quality. The applicant forwarded additional documentation (ref. Attachment 16) which includes some monitoring results of ambient air, lead content in

blood, soil sample, drinking water sample and a wastewater sample. However, in the absence of any additional description or information, it remains unclear to the evaluators if complies in practice with the license conditions. Also, no copies of monitoring of the four furnaces were received. Based on the limited information currently available to the evaluators, it is not possible to conclude that follow standards broadly equivalent to relevant international and EU standards. reportedly stopped using from 31 December 2019 and is now sending waste cables to 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. At the time of the second inspection, the evaluators had seen neither the permit issued to by the competent state pollution control board, nor any further reports on compliance of this facility with the relevant permit conditions. In response to the draft report of the second inspection, the applicant forwarded the authorisation from GPCB, which is valid until 2023. The GPCB authorisation is based on the provisions of Hazardous And Other Wastes (Management and Transboundary Movement) Rules, 2016, which is the national implementing legislation for the Basel Convention. According to the authorisation, is authorized to handle used oil and e-waste. For used oil, the facility is authorized to collect, store, transport and sell used oil to registered recyclers. For E-waste, the facility is authorized to collect, segregate,

transport, refurbishing, repairing, shredding, cutting etc. It is written under Specific conditions 1 'unit shall not receive any type of waste which bearing mercury such as tube lights and CFL etc.' Further on it is specified that the facility shall comply with the guidelines of E-waste published by CPCB/GPCB. It is assumed by the evaluators that this is referring to the Guidelines on Implementation of E-Waste (Management) Rules, 2016. Here, specific requirements apply to the E-waste dismantler specified in chapter 6. The requirements set out in these guidelines appears to include most of the elements in the EU legislation.

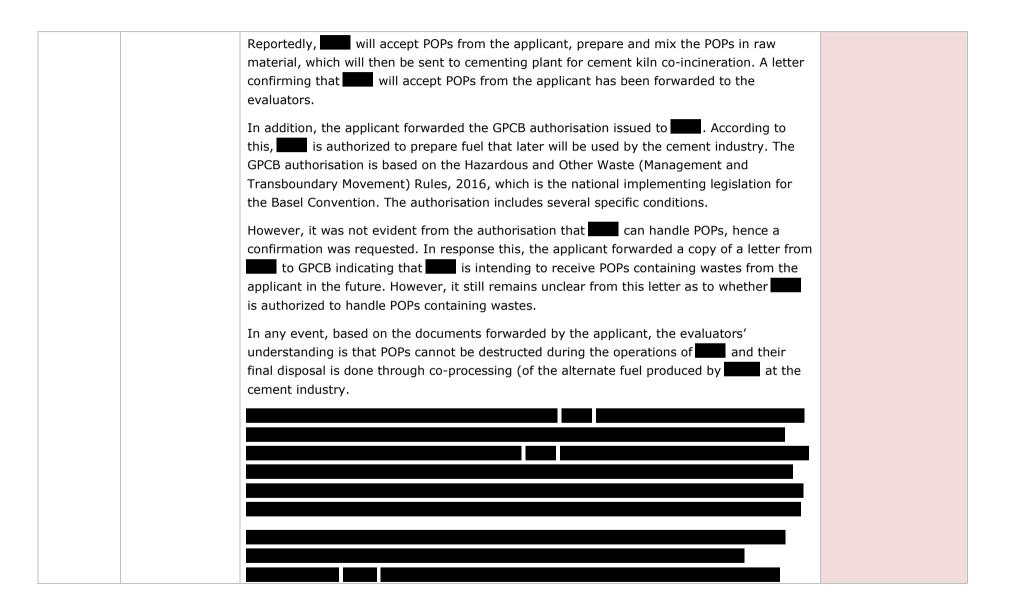
The GPCB authorisation further specify that no industrial effluent shall be generated, specific requirements apply to generation of sewage and disposal (through septic tank/soak pit system), no fuel shall be used, hence no flue gas emission. However, the facility shall install and operate an air pollution control system for the shredding section and specific emission limitations are provided for SO_2 , NO_x and particular matter. Reportedly the air pollution control system is cyclone.

In addition to the GPCB authorisation, some monitoring results for ambient air 'within company premises' and noise measurements were also forwarded by the applicant. The results show concentrations below the permissible level for ambient air, and noise levels below the permissible level. However, any additional descriptions of the monitoring, e.g. in the form of a report, was not forwarded. Monitoring reports have been submitted for other waste management facilities.

According to the authorisation from GPCB, the process emission through the various stacks/vent of reactors, shall confirm to specific standards. Hence, it is expected that the stack, in this case the shredding section, must be monitored. However, no monitoring reports for the shredding section was received.

In the absence of any additional description or information, it remains unclear to the evaluators if the operation of complies in practice with the license conditions. Therefore, based on all the information currently available to the evaluators, it is not possible to conclude that follow standards broadly equivalent to relevant international and EU standards.

, is also listed in the latest SRFP as another subcontractor for the collection and disposal of electronic waste and waste cables. It is specified in the SRFP (page 80) that this facility can also receive mercury containing E-waste to above is not authorized to handle mercury containing waste).	
However, further information has not been provided by the applicant for this facility. The evaluators neither have the relevant permit issued to this facility by the competent pollution control board, nor any monitoring reports concerning the operation of the same facility.	
Based on the limited information currently available to the evaluators, it is therefore not possible to conclude that is operated according to standards broadly equivalent to relevant international and EU standards.	
According to the SRFP page 79, persistent organic pollutants are exported to The relevant permit is available at the webpages of Remondis Sava. The applicant did not provide information on the treatment method, but by experience the evaluators know that incinerates hazardous waste. It is assumed to be operating according to relevant EU standards. However, no records of any exports of waste containing POPs were seen during the site inspections.	
The applicant has reportedly taken membership of for handling of POPs. The evaluators' understanding is that the applicant would like to send POPs containing waste to this facility in the future instead of	



The applicant also forwarded some results of monitoring measurements for ambient air and process stack for . However, any additional descriptions of the monitoring, e.g. in the form of a report, was not forwarded.

The monitoring results for ambient air show that the PM_{10} concentration was measured for 24 hours duration and it was below the permissible 24 hours average concentration, but above the permissible annual average concentration. The $PM_{2.5}$ concentration was below the permissible 24 hours average concentration but above the permissible annual average concentration.

For the process stack, the measured concentration of SO_2 and NO_2 were both below the permissible 24 hours and annual average concentration. Other parameters measured were not detected.

The monitoring was conducted by According to their webpages, this lab is a recognised environmental laboratory by the Ministry of Environment and Forests. It is reportedly an enlisted consultant and recognized environmental auditors with the GPCB. However, documents demonstrating these authorizations have not been forwarded to the evaluators. It is not known if the laboratory is accredited by NABL and what type of analysis that are included in their scope of accreditation. There is no indication on their webpages that they are accredited by NABL.

Based on all the information currently available to the evaluators, it is not possible to conclude that operates in practice according to standards broadly equivalent to relevant international and EU standards. Furthermore, it remains unclear as to whether it is authorised to handle POPs containing wastes during its operations.

As explained above, POPs cannot be destructed during the operations of and their final disposal is done through co-processing at the cement industry. This approach is plausible and similar approach is taken in Europe. 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". Mixing POPs containing wastes with other wastes at does not destroy or irreversibly transform the POP content; this will only take place when the waste is e.g. incinerated at high temperatures. Based on the information received from the applicant, it appears that the waste mix produced at is sent to for co-processing. The applicant forwarded the relevant license issued by the According to this, is authorized for Collection, Disposal, Generation, Reception, Storage of Hazardous Wastes under the Hazardous and Other Waste (Management and Transboundary Movement) Rules, 2016, i.e. the relevant national legislation implementing the Basel Convention. Further on it is described that the unit will procure hazardous waste mix liquid 3500 MT/Month from M/s and waste mix solid from 4000 MT/Month and waste mix liquid and solid 700 MT/Month from for co-processing in cement kiln only. In addition to the permit issued to the applicant also forwarded, the applicant also forwarded 'Guidelines on Co - processing in Cement/Power/Steel Industry, 2010', from the Central Pollution Control Board. It is expected that the operation of follow these guidelines.

Additionally, the evaluators understand that India has developed a number of technical guidelines, which implement the relevant Basel Convention guidelines, including the 'General Technical Guidelines for the Environmentally Sound Management of Wastes Consisting of, Containing or Contaminated with Persistent Organic Pollutants (POPs)'. Amongst these Indian guidelines, the Revised Guidelines for Pre-Processing and Co-Processing of Hazardous and Other Wastes in Cement Plant as per H&OW(M & TBM) Rules, 2016 (published in July 2017) appears to be the most relevant in the current context.

According to the above guidelines, utilisation of hazardous and other wastes for coprocessing or for any other use shall be carried out only after obtaining authorization from the State Pollution Control Board in respect of waste on the basis of standard operating procedures or guidelines provided by the Central Pollution Control Board. The authorisation from GPCB refers to a CPCB letter no. B-33014/2015/PCI-II/14511, dated 27/11/2015 and the beforementioned Co-processing guideline. Trial runs are specified in the Co-processing guideline 4.0 (page 7-8). Reportedly, trial runs are not required for co-processing of hazardous waste, except for POPs. Reportedly: "Kiln specific trial runs may be required for such wastes to study the destruction and removal efficiencies (as per the requirement of Stockholm convention) in the given kiln, compliance to emission standards, safe transport, storage and handling etc. prior to issuance of authorisation by SPCBs. In such cases, SPCBs may consult CPCB for conducting such kiln specific trial studies."

A reference to trail runs could not be found in the authorisation issued to by GPCB. It is possible that this have been conducted, but the evaluators could not find any information on this in the received documents. Also, no monitoring reports have been received for

Based on all the information currently available to the evaluators, it is therefore not possible to conclude that can treat POPs containing waste according to standards broadly equivalent to relevant international and EU standards.

It is understood from the SRFP that the applicant transfers medical waste to the However, details regarding this facility had not been available to the evaluators at the time of the inspections. The evaluators saw neither the relevant permit issued to the allowing it to handle medical waste, nor any further reports on compliance of this facility with the permit conditions. In response to the draft report of the second inspection, the applicant explained that the Alang hospital is authorised to collect bio medical waste and attached a copy of a permit issued by GPCB (valid up to 08.02.2023). The applicant further explained that "the waste collected by seemed is transferred to who is a body registered under IMA and follows BWM rules 2016 for safe disposal of bio-wastes", and attached a copy of Membership certificate of Alang Hospital from . Further information was not received, and it is not known to the evaluators how medical waste is treated when disposed. Based on the limited information currently available to the evaluators, it is not possible to conclude that the follow standards broadly equivalent to relevant international and EU standards. **Customs** Gaseous ODS are reportedly delivered to Customs, while halon is exported, and ODS in solid material is sent to , as described above. 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'. The applicant was requested to provide a copy of the permits of the refrigerant filling plants referred to above but this was not forwarded. In response to the draft report of the second

inspection, the applicant explained that they had tried contacting the Customs Department to answer this request but not received any fruitful outcome so far.

In the EU, Regulation (EC) No 1005/2009 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.

Based on the limited information currently available to the evaluators, it is not possible to conclude that gaseous ODS delivered to the Customs Department is treated according to standards broadly equivalent to relevant international and EU standards.

Steel re-rolling mills

It is understood that the applicant is using re-rolling mills to process steel recovered from the ship dismantling process.

The applicant has provided information for the following companies that receive steel and produce CTD bars, angels and channels and another producing steel ingots. The information is assessed below. It is not entirely clear if the applicant uses further re-rolling mills.

During the first inspection, the applicant provided an authorisation issued by GPCB for to the evaluators along with the factory license in hard copy. This company produces CTD bars, angels and channels.

In response to the draft report of the second inspection, the applicant clarified that they are not using this facility. Reportedly,

Initially, an analysis report for air emissions by GPCB and a letter describing the operation philosophy of fume extraction system from SRMM Enviro Equipment's to were forwarded to the evaluators. It is producing steel ingots. SRMM Enviro Equipment's sell pollution control measures for induction furnaces. The letter from SRMM Enviro Equipment does not confirm that a pollution control system is installed at nor does the letter refer to any authorisations or emissions limitations.

In response to the draft report of the second inspection for the other plot operated by Shree Ram (plot V7), the applicant forwarded the authorisation from GPCB (valid until 04.08.2021) along with monitoring results.

According to the authorisation, specific requirements apply to effluent treatment water, emissions of particular matter, SO_2 and NO_x from the induction furnaces, ambient air and noise levels.

In the EU, <u>Directive 2010/75/EU on industrial emissions (IED)</u> applies to activities falling under the category of 'production and processing of metals'. These activities are listed under Annex I point 2, and it is required to report on polluting substances in Annex II and for other polluting substances, which are likely to be emitted from the installation concerned in significant quantities (as per Art 14(1)(a)).

The GPCB authorisation appears to cover only a limited number of polluting substances compared to those listed in the IED Annex II, but for SO_2 and NO_x the emission limit values appears to be similar. Monitoring results from

were also forwarded by the applicant for ambient air, noise and the stack.

For ambient air 'within company premises', the PM_{10} concentration was measured to 86 ug/m3, measured for 24 hours duration. This is below the permissible 24 hours average concentration, but above the permissible annual average concentration. The $PM_{2.5}$ concentration is below the permissible 24 hours average concentration and the permissible

annual average concentration. The measured concentration of SO_2 and NO_2 are both below the permissible 24 hours and permissible annual average concentration.

The results of the noise monitoring are below the permissible limits.

The results of the stack monitoring are below the permissible limits.

Based on all the information currently available to the evaluators, it appears that likely follow standards broadly equivalent to relevant international and EU standards.

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. Based on the limited information currently available to the evaluators, it is not possible to conclude that the GPCB is sufficiently equipped to carry out effective controls over the operation of the concerned downstream waste management companies.

During the 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. Reportedly, the environmental monitoring programs of the waste management companies are not evaluated. 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.

Based on the above, it remains unclear to the evaluators as to whether the GPCB has the capacity to carry out regular monitoring or inspections of the downstream waste management facilities used by the applicant other than GEPIL.	

7 PHOTOS FROM THE SITE INSPECTIONS

 $\ensuremath{\mathsf{A}}$ selection of photos from the site inspections are presented below.



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



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



Helmets, shoes, eyeand respiratory masks were worn throughout the operation by cutters. The helpers were similarly equipped, except for the masks.



First inspection in the front yard. In some cases, the drain strainers were deemed small. The facility reported that there was no problem with overflow.



Second inspection the drain holes were
considered small and
scarce and the
coaming height
rather low. Question
if this could
accommodate worst
case rainfall.

This was rectified after the second inspection.



Secondary cutting area is on impermeable floors connected to a drainage system. There are two drainage lines. One on the sea front and one further away from shore which is seen here.



Second inspection – the double bottom was cut above impermeable floor with drainage.



Second inspection – the double bottom was cut above impermeable floor with drainage.



Secondary cutting on impermeable floor with drainage.



Access to ship by stable stairs.



New medical emergency healthcare unit



New medical emergency healthcare unit.



Firefighting hoses in good condition.



Kitchen in the dormitory.



Cleaning facilities at the dormitory.



Almost new generator.



PPE store room.



Intensive care unit (ICU) on wheels.
Shared with plot V7.

APPENDIX 1: Photos from the GMB workers colony, the new hospital under development and the firefighting station (March 2019)



Recreation area in the workers colony operated by the GMB. Not used by workers from the yard subject to this report



Dormitory.



Dormitory.



The workers colony consist of several block where some are dedicated to specific yards.



The common kitchen and dining area.
Currently not in use because there are few workers living in the colony.



Washing facilities in the dormitory.



The recently opened hospital.



Men's ward.



Female ward.



Burn ward.



Intense Care Unit (I.C.U.) room.



Operation theatre.



The two operational firefighting vehicles at the Fire Station in Alang.



APPENDIX 2: GEPIL

Overview of available waste treatments methods available at GEPIL Alang:

PROTECTING FUTURE	GUJARAT ENVORO PROTECTION INFRA STUCTURE LTD (ALANG-UNIT)	CTION INFRA ST	UCIUKE LID (ALANG-UNII)
Landfill Cell-1		EFFLUENT TREATMENT PLANT (ETP)	ANT (ETP)
Name:	GLASSWOOL & ASBESTOS CELL	Name:	Effluent Treatment Plant
Capacity	43,038 CuM	Capacity	30 KL per Day
Start Date	October2005	Construction start	June 2011
Close Date	26th May 2013.	Constructed Completed	April 2012
Type of Waste:	SS & SLF i.e. Asbestos, Glasswool and other landfillable waste	Commissioned on	May - 2012
Current Status	CAPPED WITH PRIMARY SOIL	Type of Waste:	Bilge Water and waste water from incinerator, contaminated Rain water, Oil block cleaning water
Landfill Cell-2		Landfill Cell 4.1	
Name:	IND. & CHEMICAL WASTE	Name:	Hazardous Waste Cell
Capacity	10,212 CuM	Capacity	70,000 CuM
Start Date	October2005	Construction start	June 2011
Close Date	31st Dec. 2011	Constructed Completed	December - 2012
Type of Waste: +	SS & SLF i.e. Glasswool and other landfillable waste	Commissioned on	27th May 2013 - IN OPERATION
Current Status	CAPPED WITH PRIMARY SOIL	Type of Waste:	LANDFILLABLE WASTE. (Mainly Glasswool and others,) Asbestos is being soldfied in one corner of landfill cell.
Landfill Cell-3		Landfill Cell 4.2	
Name:	Municipal Solid Waste	Name:	Municipal Solid Waste
Capacity	8,723.00 CuM	Capacity	30,000 CuM
Start Date	October2005	Construction start	June-2011
Close Date	In Operation	Constructed Completed	December 2012
Type of Waste:	Municipal Solid Waste	Commissioned on	Commissioned but not in operation as existing cell is in operation
Current Status	In Operation	Type of Waste:	Municipal Solid Waste
		Current Status	Not in Operation
INCINERATOR		Salient Features of Incinerator Design	rator Design
Name:	Incinerator	Design Capacity of 5 MT/Day	
Capacity	5 MT PER DAY	Design developed in association with M/s Westland, Canada	n with M/s Westland, Canada
Construction start	April 2013	Capable of Incinerating Solid/S	 Capable of Incinerating Solid/Semi Solid/Liquid Hazardous Waste
Constructed Completed	October2013	Temperature of more than 800	 Temperature of more than 800 Deg C in Primary & 1100 Deg C in Secondary chambers
Current Status	In Operation	Total residence time of flue gas	 Total residence time of flue gas > 2 seconds in secondary chamber and Breach ducts
		Two stage scrubbing system for	 Two stage scrubbing system for effective cleaning of flue gases
Type of Waste:	Incinerable Waste (Solid / semisolid & liquid)	■ DRE ~ 99.99 %	
		Emissions as per CPCB Norms	
		Online flue gas analyzer for mo	 Online flue gas analyzer for monitoring the stack gases round the clock
Fire Hydrant System		Intermediate Storage	
Tank Capacity	2,00,000 ltr	Use	To store Incinerable Waste (solid ,semi-soilid & liquid) Capacity : 1000 MT
Status	In Operation	Chaptis	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



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