

Appendix 7 Environmental Clearance

F. No. 11-43/2014 - IA III

Government of India
Ministry of Environment, Forest & Climate Change
(I.A. Division)

Indira Paryavaran Bhawan
 Aliganj, Jorbagh Road,
 New Delhi -110003

Telefax: 011: 24695398
 Dated: 2nd November, 2016

To,

Shri Atul Sharma,
Dy. General Manager (Env),
M/s Gujarat Maritime Board,
Sagar Bhavan, Sector 10/A,
Opp. Air Force Station,
Sachivalaya, Gandhinagar- 382010

E-mail : aasharma.envgmb@gmail.com; manangmb@gmail.com;
Fax: 079-23234705;

Subject: Upgradation of existing ship recycling yard at Alang Sosiya, Gujarat for undertaking safe and environmentally sound ship recycling operations by M/s Gujarat Maritime Board –Environmental and CRZ Clearance reg.

Ref.: Your online proposal no. IA/GJ/MIS/24799/2014 dated 8th July, 2016.

Sir,

This has reference to your online proposal no. IA/GJ/MIS/24799/2014 dated 8th July, 2016 alongwith project documents including Form I, Terms of References, Pre-feasibility Report, EIA/EMP Report regarding above mentioned project.

2.0 The Ministry of Environment, Forest and Climate Change has examined the application. It is noted that the proposal is for upgradation of existing ship recycling yard at Alang Sosiya, Gujarat for undertaking safe and environmentally sound ship recycling operations by M/s Gujarat Maritime Board. The existing yard stretches over a length of 10 km of coastline. The yard is divided into 167 plots which have been leased to private entrepreneurs for ship recycling. The existing yard has the capacity to recycle 400 ships per year to recover 4 million tonnes per year (Mt/yr) of various materials which include over 99% steel. Details of the proposed upgradation and expansion project are as given below:

- a. **Upgradation of existing Ship recycling plots:** 70 plots in Phase I and remaining 97 plots in Phase II.
- b. **Hazardous Material removal Pre-treatment Facility:** Constructing two nos. of dry-docks (each of dimension: l x b x h = 300 m x 50 m x 11.5 m) for pre-cleaning of hazardous materials from ships. Dry-dock 1 will be at the southern end of the existing yard and Dry-dock-2 about 2 km further south. Both the dry-docks may also be used for ship repair and ship building purposes when there are no ships for decontamination.



- c. **Additional facilities:** (1) Waste oil treatment system. (2) Incinerator at the existing dedicated waste Treatment Storage and Disposal Facility (TSDF) site located within Alang Notified Area.
- d. **Additional Plots:** 15 nos. 100 x 90 m plots between the two proposed dry-docks.

3.0 The total quantity of capital dredging from each dry-dock works to about 1.00 million cubic metres (Mm³). Quantity of maintenance dredging will be 0.10 Mm³ for each dry-dock.

4.0 Cost of project is Rs. 1630 Crore. Total water requirement for industrial purpose will be 2000 m³/day and potable purpose will be 2000 m³/day after expansion. At present, 1000 m³/day is being supplied through pipeline from Trapaj. The remaining water is supplied in tankers from bore-wells located well away from the coast. Ballast water will be treated for oil content and sediments before discharging. Quantity of bilge water generation will be 52 m³/day, which will be treated in the ETP (60 m³/day). Each plot will have RCC storage tank of 25 m³ capacity. Sewage will be treated in the STP. Power requirement for grid will be increased from 1.35 MW to 3.0 MW after expansion. Emergency power will be provided by DG set.

5.0 Adequate measures will be taken while handling asbestos. Asbestos & asbestos containing material (ACM) will be removed before actual ship cutting starts; Dismantling of large sub-assemblies containing asbestos/ACM will be carried out in special completely enclosed chambers equipped with special air filters. Pressure inside will be kept slightly below atmospheric pressure. Salvageable asbestos/ACM will be sold to only authorized recyclers only. All asbestos containing waste-packed in leak proof & labelled containers will be disposed in TSDF. Glass wool, Paint chips and waste containing poly chlorinated biphenyls (PCBs), waste Rubber will be sent to TSDF. Poly-urethane foam (PUF) & Polystyrene (Thermocol), Sludge Residue and Contaminated Material, Unusable plastics & non-metallic paints, Rexene will be incinerated in the incinerator. Incinerator should be designed as per CPCB guidelines. Energy shall be recovered from incinerator.

6.0 Public hearing was held on 20th October, 2015.

7.0 Gujarat Coastal Zone Management Authority vide letter no. ENV-10-2016-99-E (T Cell) dated 8th June, 2016 has recommended the proposed facilities to MoEF&CC under the provisions of the CRZ Notification, 2011. As per the CRZ maps prepared by the NCSCM, Chennai proposed facilities fall in the CRZ – (IB), CRZ (III) and CRZ (IV) category.

8.0 All the projects related to ship breaking yards including ship breaking units are listed at 7(a) of schedule of EIA Notification, 2006 covered under category 'A' and appraised at Central level.

9.0 The proposal was considered by the Expert Appraisal Committee (Infrastructure-2) in its meetings held during 26th – 28th November, 2014, 23rd – 24th April, 2015, 28th-29th July, 2016 and 21st – 22nd September, 2016 respectively. Project Proponent and the EIA Consultant namely M/s MECON Limited, have presented EIA / EMP report as per the TOR. EAC has found the EIA / EMP Report and additional information to be adequate and in full consonance with the presented TORs. The Committee recommended the proposal for environmental and CRZ clearance.

10.0 As per the recommendations of EAC, the Ministry of Environment, Forest & Climate Change hereby accords Environmental and CRZ Clearance for the above-mentioned project "Upgradation of existing ship recycling yard at Alang Sosiya, Gujarat by M/s Gujarat

Maritime Board", under the provisions of the Environment Impact Assessment Notification, 2006 & Coastal Regulation Zone (CRZ) Notification, 2011 and amendments thereto and Circulars issued thereon and subject to the compliance of the following specific conditions, in addition to the general conditions mentioned below:

A. SPECIFIC CONDITIONS:

- i) 'Consent to Establish' shall be obtained from State Pollution Control Board under the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974.
- ii) Construction activity shall be carried out strictly according to the provisions of CRZ Notification, 2011. No construction work other than those permitted in Coastal Regulation Zone Notification shall be carried out in Coastal Regulation Zone area.
- iii) The Project proponent shall ensure that no creeks or rivers are blocked due to any activities at the project site and free flow of water is maintained.
- iv) Shoreline should not be disturbed due to dumping. Periodical study on shore line changes shall be conducted and mitigation carried out, if necessary. The details shall be submitted along with the six monthly monitoring report. A creek protection plan and a plan to manage the marine biodiversity shall be prepared, documented and implemented through the NIOS or any other specialist institution of repute in marine and brackish water biology
- v) GMB shall implement the plan for upgradation of the existing ship recycling units in such a way that will help to improve the overall marine water quality of the sea atleast for Class SW-IV water (for harbour water) parameters i.e. pH range 6.5-9.0; Dissolved Oxygen 3.0 mg/l or 40 percent saturation value, whichever is higher; Colour and Odour: no noticeable colour or offensive odour; Floating Matters Oil, grease and scum (including Petroleum products) 10 mg/l; Fecal Coliform 500/100 ml (PAN) Not exceeding 1000/100 ml in 20 percent of samples in the year and in 3 consecutive samples in monsoon months; Biochemical Oxygen Demand (3 days at 27°C) 5 mg/l.
- vi) All the recommendations and conditions specified by Gujarat Coastal Zone Management Authority vide letter no. ENV-10-2016-99-E (T Cell) dated 8th June, 2016 shall be complied with. All the provisions of the CRZ notification, 2011 as amended from time to time shall be strictly complied with.
- vii) All details on waste management and handling as given in letter no. GMB/ENV/91(C)/JICA/5404 dated 19-7-2016 as submitted before the committee should also be provided to the State Pollution Control Board along with the application for consent and authorisation to enable them to verify compliance on site before the Consents to Operate, authorisation or any other permission to operate is given. An action plan shall be formulated, documented and implemented for the existing and proposed dock to ensure zero waste spill.
- viii) While breaking the ship, boom (circular pneumatic type) should be placed around the ship to control the spillage.
- ix) Collection vehicles used for the collection and transportation of solid/liquid waste should be adequately designed to handle specific type of wastes and shall have protection against the leaking or spilling of solid waste or being blown or hurled from such vehicles.

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- x) Safety and health requirements relating to occupational exposure to Asbestos, while ship breaking shall be in compliance with IS11456-1986 and subsequent amendments. Facility must ensure that workers are not exposed to air-borne asbestos concentrations in excess of prescribed Permissible Exposure Limits (PELs).
- xi) There should be a safe working and operating procedures ensuring safe accessibility to all the areas and compartments of the ship and safe conditions for hot work.
- xii) Hazardous waste inventory that identifies, quantifies and locates the type of waste on board should be carried out before the ship comes to the shore. Chemical safety data sheets should be made available for each hazardous substance that is identified. As per the High Power Committee, maintaining the complete inventory of hazardous wastes on board is a mandatory task for any ship owner. This inventory shall be submitted by the State Maritime Board to the SPCB to ensure safe disposal of hazardous waste. Further permissions for ship anchoring and beaching will be based on hazardous waste inventory. Removing and cleaning of liquids, fuels and oils: Before start of ship dismantling, all the liquid residues should be removed and cleaned from the ship. This process may continue during the entire ship dismantling process.
- xiii) The hazardous wastes identified by the inventory data be properly removed and disposed. Dismantling plan should be drawn before start of the work. This plan forms the basis for sectional breaking of the ship; proper storage; breaking and disposal of waste. Waste obtained during dismantling should be sorted and segregated based on the type of waste and disposal option. Specific wastes from the ship breaking yard are as follows: Asbestos / Polychlorinated biphenyls (PCBs) / Bilge and ballast waters / Oils and fuels / Metal cutting / Paints Removal and Disposal of Miscellaneous Ship Machinery
- xiv) The Project Proponent should perform air surveillance activities in work areas where asbestos is being removed, including meeting the general monitoring criteria, conducting initial exposure assessments, and performing daily and periodic monitoring. The facility must keep an accurate record of all measurements taken to monitor the workers' exposure to asbestos. Facility is required to conduct medical surveillance for all workers who, for a combined total of 30 or more days per year, are performing asbestos removal work or are exposed at or above the permissible exposure limit. This includes medical examination and consultation prior to beginning work, at least annually, and upon termination of employment. The facility must establish and maintain an accurate record for each worker subject to medical surveillance. These records must be maintained for the duration of the worker's employment, plus an additional 30 years.
- xv) The Project Proponent should provide, at no cost, a training program for employees likely to be exposed to asbestos removal work during the ship breaking.
- xvi) A comprehensive Medical contingency plan shall be evolved, documented and implemented for occupational health and safety. Proper periodical medical check-ups and insurance plans shall be undertaken for workers during and after their employment on the premises. The project will build in a continued program of

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- sensitising all stake holders to the hazards of asbestos exposure and its management.
- xvii) The gaseous emissions from DG set shall be dispersed through adequate stack height as per CPCB standards. Acoustic enclosure shall be provided to the DG sets to mitigate the noise pollution.
 - xviii) Incinerator shall be designed as per CPCB guidelines. Energy shall be recovered from incinerator. Online pollutant monitoring shall be provided as per CPCB guidelines for monitoring particulate matter, SO₂, NO_x and CO from the incinerator stack. The periodical monitoring of Dioxins and Furans in the Stack emissions shall be carried out. Efficiency of scrubber shall be monitored regularly and maintained properly.
 - xix) The removal of paints and coatings, regardless of the process used, generates wastes that must be managed and disposed. The Project Proponent should implement procedures to ensure that all wastes are contained and stored in a manner that will prevent their release into the environment.
 - xx) Refrigerants (CFC-12, HCFC-22, HFC), which are ozone depleting or with high Global Warming Potential from the ship shall be recovered without leaking into atmosphere and stored safely. Recovered refrigerant shall be sent to authorized recycler/reclaimer. If recycling /reclaiming are not possible, then recovered refrigerant shall be sent to authorized destruction facilities.
 - xxi) Municipal solid waste shall be disposed off as per Solid Waste Management Rules, 2016. Construction activity related wastes (C & D waste) shall be disposed off as per Construction and Demolition Waste Management Rules, 2016. Plastic waste shall be disposed off as per Plastic Waste Management Rules 2016. E-waste shall be disposed off as per e-waste (Management) Rules, 2016. Lead acid batteries shall be disposed off as per Batteries (Management and Handling) Rules, 2001 and its amendment from time to time.
 - xxii) All hazardous wastes including onboard wastes (while ships dock at the site) shall be handled as per the Hazardous and other Waste (Management & Transboundary Movement) Rules, 2016.
 - xxiii) To ensure better safety and security of plots, open spaces (buffers) can be created for giving emergency access/ parking to/for fire tenders, installing water lines for emergency services, access to beach, anchoring rescue boats and dinghies.
 - xxiv) Truck parking facility should be provided for easy accessibility of vehicles for transporting scrap and other materials and to relieve the traffic congestion around the yards. The parking facility should have basic infrastructure like potable water, sanitation, resting, shops, eating joints, vehicle repair shops, fuelling stations, etc., for the drivers. It should also have accommodation for transporter companies/agents. To accommodate more number of vehicles the trucks can be parked angularly.
 - xxv) Facility must ensure that workers are protected from exposure to airborne PCB concentrations. As per OSHA (Occupational Safety and Health Administration) regulations, governing exposure to PCBs in the workplace include two time-weighted averages for chlorodiphenyl.

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- xxvi) All encroachments shall be removed and suitably rehabilitated as proposed. The project proponents would provide for waste management from eateries, dhabas and other sources within the area of jurisdiction/ influence of the project.
- xxvii) All the recommendations mentioned in the rapid risk assessment report, disaster management plan and safety guidelines shall be implemented.
- xxviii) Automatic /online monitoring system (24 x 7 monitoring devices) for air pollution as well as water pollution in respect of flow measurement and relevant pollutants in the treatment system to be installed. The data to be made available to the respective SPCB and in the GMB's website.
- xxix) A separate Environmental Management Cell equipped with full fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions. The current upgradation project should be supervised and monitored by the proposed cell.
- xxx) The funds earmarked for environment management plan shall be included in the budget and this shall not be diverted for any other purposes.
- xxxi) The proponent shall abide by all the commitments and recommendations made in the EIA/EMP report and also during their presentation to the EAC.
- xxxii) The Project Proponent shall prepare operating manual in respect of all activities. It shall cover all safety & environment related issues and system. Measures to be taken for protection. One set of environmental manual shall be made available at the project site. Awareness shall be created at each level of the management. All the schedules and results of environmental monitoring shall be available at the project site office.
- xxxiii) Corporate Social Responsibility:
 - a. The Company shall have a well laid down Environment Policy approved by the Board of Directors.
 - b. The Environment Policy shall prescribe for standard operating process/procedures to bring into focus any infringements/ deviation/violation of the environmental or forest norms/ conditions.
 - c. The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions shall be furnished.
 - d. To have proper checks and balances, the company shall have a well laid down system of reporting of non-compliances/ violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.

B. GENERAL CONDITIONS:

- (i) Appropriate measures must be taken while undertaking dredging/digging activities to avoid any likely degradation of water quality.
- (ii) Full support shall be extended to the officers of this Ministry/ Regional Office at Bhopal by the project proponent during inspection of the project for monitoring purposes by furnishing full details and action plan including action taken reports in respect of mitigation measures and other environmental protection activities.

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- (iii) A six-Monthly monitoring report shall need to be submitted by the project proponents to the Regional Office of this Ministry at Bhopal regarding the implementation of the stipulated conditions.
- (iv) Ministry of Environment, Forest and Climate Change or any other competent authority may stipulate any additional conditions or modify the existing ones, if necessary in the interest of environment and the same shall be complied with.
- (v) The Ministry reserves the right to revoke this clearance if any of the conditions stipulated are not complied to the satisfaction of the Ministry.
- (vi) In the event of a change in project profile or change in the implementation agency, a fresh reference shall be made to the Ministry of Environment, Forest and Climate Change.
- (vii) The project proponents shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work.
- (viii) A copy of the environmental clearance letter shall also be displayed on the website of the concerned State Pollution Control Board. The EC letter shall also be displayed at the Regional Office, District Industries centre and Collector's Office/ Tehsildar's office for 30 days.

11.0 These stipulations would be enforced among others under the provisions of Water (Prevention and Control of Pollution) Act 1974, the Air (Prevention and Control of Pollution) Act 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification 2006, including the amendments and rules made thereafter.

12.0 All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department, Civil Aviation Department, Forest Conservation Act, 1980 and Wildlife (Protection) Act, 1972 etc. shall be obtained, as applicable by project proponents from the respective competent authorities.

13.0 The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded Environmental and CRZ Clearance and copies of clearance letters are available with the State Pollution Control Board and may also be seen on the website of the Ministry of Environment, Forest and Climate Change at <http://www.envfor.nic.in>. The advertisement should be made within Seven days from the date of receipt of the Clearance letter and a copy of the same should be forwarded to the Regional office of this Ministry at Bhopal.

14.0 This Clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs Union of India in Writ Petition (Civil) No.460 of 2004 as may be applicable to this project.

15.0 Status of compliance to the various stipulated environmental conditions and environmental safeguards will be uploaded by the project proponent in its website.

16.0 Any appeal against this Clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

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17.0 A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zilla Parisad / Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.


18.0 The proponent shall upload the status of compliance of the stipulated EC conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MoEFCC, the respective Zonal Office of CPCB and the SPCB.

19.0 The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of EC conditions and shall also be sent to the respective Regional Offices of MoEFCC by e-mail.


 21/11/16
 (A N Singh)
 Scientist D

Copy to :-

1. The Principal Secretary, Forests & Environment Department, Government of Gujarat, Sachivalaya, 8th Floor, Gandhi Nagar - 382 010, Gujarat.
2. The Additional Principal Chief Conservator of Forests (Western Zone), Ministry of Environment, Forest and Climate Change, Regional Office, E-5, Arera Colony, Link Road - 3, Bhopal -462 016, M.P.
3. The Chairman, Central Pollution Control Board Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, New Delhi - 110 032.
4. The Chairman, Gujarat State Pollution Control Board, Paryavaran Bhawan, Sector 10 A, Gandhi Nagar-382 043, Gujarat.
5. Monitoring Cell, Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhavan, Jor bagh Road, New Delhi.
6. Guard File/Monitoring File/Record File.


 (A N Singh)
 Scientist D

Appendix 8 CMZA Recommendation



**GOVERNMENT OF GUJARAT
FORESTS & ENVIRONMENT DEPARTMENT
BLOCK NO. 14, 8TH FLOOR, SACHIVALAYA
GANDHINAGAR - 382 010.**

**HARDIK SHAH, IAS
DIRECTOR (ENVIRONMENT) &
MEMBER SECRETARY, GCZMA**

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Ref. No.ENV-10-2016-99-E

June 8, 2016

To,
Shri S.K.Srivastava
Additional Director(IA-III)
Ministry of Environment, Forests & Climate Change
Indira Paryavaran Bhavan, Jor Bugh,
Aliganj Road New Delhi - 110 003

Sub: CRZ clearance for proposed project for upgradation of existing Ship Recycling Yard for undertaking safe and environmentally sound ship recycling operation at Alang- Sosiya, Dist: Bhavnagar by Gujarat Maritime Board – regarding

Dear Sir,

The Gujarat Mari-time Board (GMB), vide its letter dated 22/12/2015 has approached this Department seeking the recommendation from the Gujarat Coastal Zone Management Authority for obtaining CRZ clearance from Ministry of Environment and Forests, GOI for proposed project for upgradation of existing Ship Recycling Yard for undertaking safe and environmentally sound shi recycling operation at Alang-Sosiya, Dist: Bhavnagar.

The Gujarat Maritime Board is operating world's largest ship recycling yard at Alang, stretching over 10 km of the coastline . At present there are 167 ship recycling plots that are leased out to private entrepreneurs. Since 1982, over more than 5500 vessels have been scrapped in the yards including warships, tankers and even oil rigs.

The GMB has proposed to upgrade the existing environmental infrastructure and operation thereof in safe and environmentally sound manner. The Gujarat Maritime Board has proposed following facilities as a part of this proposal

1. Improvement of existing infrastructure – including impervious flooring for 70 plots in phase –I and remaining plots are proposed to be upgrade in Phase-II),
2. Development of two dry docks facilities for the purpose of pre-cleaning of hazardous material and wastes. Both the dry docks are proposed to be used for

not only decontamination of ships but also may be used for ship building /ship repairing purpose to implement the 3R's concept.

3. Development of 15 new Ship Recycling plots between two dry docks.

The GMB has submitted following documents alongwith application:

1. Form-I as per CRZ Notification 2011
2. Prefeasibility report for project of upgradation of existing ship recycling yard
3. Various undertakings as per guidelines of this Department
4. CRZ maps dully superimposed for the proposed project prepared by the National Centre for Sustainable Coastal Management, Chennai (one of the agencies authorized by the MOEF&CC, GOI)
5. Environmental Impact Assessment report and Environment Management Plan prepared by the MECON Limited, Ranchi, Jharkhand

The MECON Limited in their rapid EIA and EMP report has studied the Project Description (chapter 2), Description of Environment (chapter 3), Anticipated Environmental Impacts and Mitigation Measures (chapter 4), Analysis of alternatives (chapter 5), Environmental Monitoring Programme(chapter 6), Benefits of project(chapter 8), The MECON Limited has also included one chapter as Summary and Conclusion(chapter 10).

The main findings of the Marine EIA report prepared by the MECON Limited are summarized as follows:

- i. The project will require additional ~20 ha of land. This land comprises of Sea beach just beyond the existing SRY and scrubland just beyond the beach. This land is owned by Gujarat Maritime Board. There is possibility of shore-line changes on account of expansion of the existing SRY. However in this case shoreline changes are unlikely to occur because, the existing Ship Recycling Yard has been in operation since the early 1980s and there have been no shoreline changes. The offshore dry-docks will be linked to shore by cause-ways to allow free movement of beach sand.
- ii. At the proposed project it is expected that 6 Mt/yr of LDT will be handled. Thus based on the statistics and current scenario of waste generation, it is expected that ~14900 t/yr of hazardous wastes and ~1550 t/yr of MSW will be generated.
- iii. Asbestos was widely used in construction and industry because of resistance to abrasion and corrosion, inert to acidic and alkaline solutions, stability at

high temperatures, poor electrical and thermal conductivity, non-combustible and strong yet flexible. Asbestos and ACM is found on ships in many types of materials. When ACM is deteriorated, crushed or otherwise disturbed, asbestos fibres break up into very fine fibres and are released to the environment by either dispersing in the air, floating on water or accumulating on the ground. Because asbestos fibres are small (0.1 – 10 microns long) and light, they easily become airborne and remain so for long periods. People working in asbestos laden air inhale the fibres. Asbestos exposure during ship recycling can occur by Occupational exposure, Para occupational exposure and Neighborhood exposure.

- iv. There are several types of lesions associated with asbestos inhalation – fibrosis, carcinoma and mesothelioma (cancer of mesothelial tissue e.g. pleura, peritoneum). Fibrosis is associated chronic industrial exposure to all forms for asbestos fibres. Usually 4 – 7 years chronic exposure is required to produce serious degree of fibrosis but the same can be hastened by smoking. Fibrosis causes persistent coughing, breathing trouble and impairs lung function; secondary problems can be fatal. In human beings asbestos has been known to cause cancer in lungs, pleura (outer covering of lungs) , peritoneum (lining of abdominal cavity) and even intestines. There is evidence to suggest that brief but intense asbestos inhalation can lead to mesothelioma after a latency period of up to 40 years. Asbestos inhalation causes lysis of red blood cells, cytotoxicity of pulmonary macrophages and stimulation of collagen synthesis. The Asbestos Convention, 1986 adopted by International Labour Organisation (ILO) aims to control the use of asbestos.
- v. Although some countries are yet to ratify the convention and Russia is not a member of ILO many of the major ship-building countries have ratified the convention and use of asbestos on board ships has been / is being phased out. The new regulation in SOLAS Chapter II-1 (Construction – Structure, subdivision and stability, machinery and electrical installations) prohibits the new installation of materials which contain asbestos on all ships except for vanes used in rotary vane compressors and rotary vane vacuum pumps; watertight joints and linings used for the circulation of fluids when at high temperatures (in excess of 350oC) or pressure (in excess of 7 x 10⁶ Pa), there

- is a risk of fire, corrosion or toxicity; and Supple and flexible thermal insulation assemblies used for temperatures above 1000 C.
- vi. Moreover, since use of steam propulsion in ships is now limited mostly to LNG carriers only, requirement of asbestos based thermal insulation has also reduced. Consequently, diminishing number of ships containing large quantities of asbestos are in operation or being scrapped. In the proposed project, all forms for asbestos inhalation will be reduced to well below the threshold limits by stringent measures.
 - vii. On each plot a dedicated trained Asbestos Removal Supervisor is appointed to oversee asbestos removal activities. A trained Asbestos Removal Supervisor may oversee asbestos removal work in more than one plot because not all ships contain asbestos.
 - viii. In Alang SRY, Class I (activities involving removal of thermal system [TSI] insulation and sprayed-on or trowelled-on or otherwise applied surfacing ACM or presumed ACM) , Class II (Activities involving removal of ACM which is neither TSI or surfacing ACM) and Class IV (activities to clean up dust, waste, and debris resulting from Classes I, II works) asbestos works are carried out. The first step involves identification of asbestos and ACM on board the ship. A thorough inspection of the ship is carried out to note the presence of asbestos and ACM. The survey covers identification, location and quantification of Friable ACM, Category I Non-friable ACM as well as Category II Non-friable ACM.
 - ix. Based on the location of asbestos and ACM on the ship, the Supervisor sets up regulated / containment areas and put up prominent and easily understood signs denoting them. Similar areas are put up on the plots as well for dismantling sub-assemblies containing asbestos
 - x. In the smaller plots it may not be possible to have permanent asbestos handling setup. For such places, mobile units are available for deployment on the concerned plots as and when required. Since asbestos and ACM are classified as Hazardous Wastes as per “Hazardous Wastes (Management, Handling and Trans boundary Movement) Rules, 2008” they shall be removed before Grant of Cutting Permission by Gujarat Pollution Control Board. The Supervisor regulates the entry and exit of workers to and from the asbestos

- containment areas. The best operating practices to control asbestos emissions shall be adopted for removal and disposal of asbestos.
- xi. The packaged ACWM is transported by dedicated marked tractor-trolleys to Alang TSDF. At Alang TSDF, the ACWM is dumped in a separate masonry pit in landfill for hazardous wastes. Layer of ACWM is further cemented over to ensure 100% immobilization.
 - xii. In the proposed project, PCB containing wastes expected to be generated are paint chips, engine oil, hydraulic fluids, damaged electrical cable insulation, damaged electrical components, rubber and plastics. PCB containing wastes are classified as “Hazardous” as per the provisions of the “Hazardous Wastes (Management, Handling and Trans boundary Movement) Rules, 2008
 - xiii. Engine oil and hydraulic fluids will be carefully collected and sold to authorized recyclers. Salvageable electrical equipment / components, which may contain PCBs to will be sold to authorized recyclers. Tarpaulin / plastic sheets will spread below the painted platings, from where paint is to be stripped prior to cutting to collect the falling paint chips. These will then be packed and disposed off as hazardous wastes. Waste electrical cable insulation and electrical components which are unsalvageable, will also be treated as hazardous wastes and disposed off accordingly. The stringent measures will prevent release of PCBs into the environment from the proposed project.
 - xiv. Paint chips are likely to contain heavy metals such as lead, chromium, copper, zinc & aluminium, toxic additives to inhibit marine growth and PCBs. It may be noted that the “International Convention on the Control of Harmful Anti-fouling Systems on Ships” adopted on 5th Oct., 2001 and in force since 17th Sept., 2008 prohibits the application or reapplication of organotins compounds which act as biocides in antifouling systems or the ships “shall bear a coating that forms a barrier to such compounds leaching from the underlying non-compliant antifouling systems”. Thus hardly any TBT containing wastes will be generated at the proposed project.
 - xv. Insulation from damaged electrical cables will be stripped in a designated area which will be marked accordingly. Similarly damaged electrical equipment, which may include PCB containing components will be dismantled in the designated area. All wastes, which may contain PCBs (e.g. damaged electrical cable insulation, capacitors etc.) will be segregated and

- stored separately in labeled packages as specified in Rule 19 of the Hazardous Wastes (Management, Handling and Trans-boundary Movement), Rules, 2008.
- xvi. The plot owners maintain records of generation and disposal of PCB wastes as specified in Rules 21 and 22 of the said Hazardous Wastes (Management, Handling and Trans-boundary Movement), Rules, 2008. The wastes are transported to Alang TSDF for hazardous wastes and disposed off as specified in Rules 20, 21 and 18 of the said rules, respectively.
 - xvii. Paint chips are likely to contain lead, chromium, zinc, copper and other heavy metals. Heavy duty canvas sheets may be spread below the surfaces which are to be stripped of paint prior to cutting to collect the falling paint chips. Decks where paint chips have fallen are cleaned and the debris picked up using vacuum cleaners. The paint chips are placed in leak proof labeled containers and stored in a designated place prior to being dispatched to Alang TSDF. In the proposed project, all necessary measures will be undertaken to prevent paint chips finding their way to the environment.
 - xviii. Alang-Sosiya SRY does not process nuclear powered ships. However workers are at risk of radiation exposure on account of working on ships contaminated with radioactivity (due to having carried nuclear weapons or any such devices) or handling instruments containing radio-active isotopes. Necessary administrative measures are in place to prevent radiological exposures to workers and the general public
 - xix. Other solid wastes which are generated are remnants of cargo, packaging material (wood, cardboard, paper), insulating material [Polyurethane foam rubber, Expanded Polystyrene (thermocool), plastics etc.], metal chips, contaminated soil etc. During gas cutting of ships' hulls, globs of molten steel are generated which are likely to fall on the beach. Asbestos sheets, which may have been recovered from ships, may be placed on the ground below the cutting line to collect the falling globs of molten metal. This will improve material recovery and reduce contamination of the beach. The collected metal may be sold off as melting scrap. All non-hazardous non-metallic materials are collected and stacked separately till they can be dispatched to Alang TSDF. In spite of best efforts, the sand of the beach may be contaminated by spillages of oil / oily sludge, paint debris etc. In such

- cases, the contaminated sand will be scraped off and dispatched to Alang TSDF.
- xx. The GMB has developed a dedicated TSDF for disposal of wastes generated from Alang Sosiya SRY. The TSDF is located within Alang Notified Area near Manar Village alongside SH-37. The TSDF includes a Effluent Treatment Plant (ETP), an
 - xxi. Incinerator and Landfills for hazardous wastes as well as municipal solid wastes (MSW). The TSDF has its own fleet of tractor-trolleys for transporting wastes from the ship-recycling plots to the TSDF site, weigh-bridge and quality control laboratory. GMB has contracted M/s Gujarat Enviro Protection and Infrastructure Limited (GEPIL) to operate the TSDF. The ETP has a capacity to treat 30 m³/day of oily waste waters from ships by physic-chemical and biological means. The ETP also treats leachates from the TSDF's landfills. Oily water is collected from the ships and transported by tankers or in drums to the ETP. Leachates from the landfills are pumped to the ETP site
 - xxii. "International Convention for the Control and Management of Ships' Ballast Water and Sediments" (BWM Convention) was adopted by International Maritime Organisation (IMO) on 13th Feb., 2004. The convention requires all ships to implement a Ballast Water and Sediments Management Plan. IMO has formulated a protocol which requires ships to change their ballast water in high seas with an efficiency of 95% volumetric exchange while transiting between ports. At the project necessary administrative measures will be taken to prevent the discharge of un-exchanged ballast water and oily ballast water and bilge water.
 - xxiii. At the expanded ship recycling yard, LPG will be used for gas cutting of ships @ 22000 t/yr. Other than CO₂, NO_x will be generated. The annual NO_x generation has been estimated to be 87230 kg /yr (@ 86 g NO_x/GJ) i.e. 290.77 kg/day. This will be generated at over a wide area (~12000 m x ~250 m). The adiabatic flame temperature of LPG is >1500oC. Because of the high temperature of generation, the NO_x, will disperse rapidly in the atmosphere. In addition the high prevailing wind speeds will further promote dispersion of the NO_x. At the expanded project HSD will be used as fuel for material handling equipment and for material transport. The emissions from vehicles

will contain NO_x. The NO_x will be dispersed by the high prevailing wind speed. The high rate of dispersion will ensure that the NO_x is rapidly diluted in the atmosphere. Nevertheless the dispersion of NO_x generated on account of the proposed expansion of the SRY has been mathematically estimated by ISCST-3 model. The results indicate that the maximum ground level concentration of NO_x due to the project is likely to occur within the project area itself. The ground level concentrations of NO_x will be diluted to near back-ground levels within 1000 m of the project area.

- xxiv. The nearby villages are at least 1 km the SRY. Thus at the nearby villages, there will be no increase in NO_x levels on account of the proposed project. Since the existing NO_x levels are already very low, the resultant air quality will remain well within the norms.
- xxv. Fugitive dust is generated due to handling of rusted steel plates on the beach and operation of trucks on road serving the project. Iron dust is hard and heavy. It does not spread beyond the ship recycling plots. As has been mentioned earlier, the pavement of the ship-recycling area will be concreted, which will greatly reduce fugitive dust generation. All the materials recovered during ship recycling are despatched by trucks. Fugitive dust is likely to be generated from the roads. However, the dust generation has been reduced by having wide metalled roads which is kept in good repair. The road running the length of the yard has been converted into a concrete road which has reduced fugitive dust generation.
- xxvi. The existing noise level in the study area, as measured is 78 to 41.4 dB(A) during day time and 50.4 to 40.5 dB(A) at night. The major noise generating activity at the yard are operation of diesel powered material handling machinery, handling of large pieces of metal (some weighing several tonnes a piece) and trucks carrying away recovered materials. At present the number of truck plying on the road is 1216 / day. The increase in truck traffic will double (as at present the yard is operating at ~2.8 Mt/yr). This increase may increase the background noise levels by ~8 dB(A). Noise level is likely to increase in the project area as the project becomes fully operational. The noise levels of the diesel powered machinery which will operate at the yard are mostly 75 – 80 dB(A) at 10 m distance. In addition to noise generated by diesel powered machinery, noise will also be generated on account of

handling of metal. In the ship-recycling yard the personal exposure shall be less than 90 dB (A). From the estimation it can be observed that the activities at the proposed expansion area of project may marginally affect the ambient noise levels at the nearest villages in the study area. Those at a distance will not be affected.

- xxvii. As indicated, expansion area of the project will be located mostly on barren lands and scrub lands. As regards impact on wildlife is concerned, most of the wild life in the project areas and its vicinity are confined to common small species, found on the outskirts of villages in most parts of India. The strong light in the project premises during night may cause disturbances to the fauna in the near by areas. It has been planned that all the light posts erected along the boundary of the project area will face inwards and down wards (with reflectors facing the project area and downwards), so that the light does not spread much outside the project boundary.
- xxviii. The project area's marine bio-diversity is low. There is no large scale fishing activity. Hardly half a dozen or so fishing boats (all of them converted lifeboats salvaged from scrapped ships) are operating in the area. Due to implementation of stringent water pollution control measures, no untreated effluents or solid wastes will be discharged into the marine environment. Therefore marine flora and fauna will not be affected on this account.

The Technical Committee scrutinized the proposal of GMB in its 22nd meeting, which was held on 22-03-2016, wherein representative of GMB made a presentation about various activities to be carried out in the CRZ area, EIA report prepared by the MECON Limited, Ranchi, and CRZ map prepared by the National Centre for Sustainable Coastal Management, Chennai and Hydro-dynamic Modeling Studies carried out by the Indomer Coastal Hydraulics Pvt Ltd, Chennai Based on the presentation made by the representative of the GMB, it was decided by the Technical Committee to seek various details from the GMB. The GMB vide its lett18-04-2016 has submitted the details as asked by the Technical Committee

The representative of the GMB made a presentation before the GCZMA and submitted that the GMB has proposes to upgrade Ship Yards(70 plots) providing impervious floors to the plots during Phase-I and rest Plots will be covered under Phase-II for prevention of leachate of pollutants to sub soil/marine environment. Construction of Dock Yards(2 dry dock)(common facility for hazardous material removal from ships of

special concern e.g, tankers, insulated vessels etc) and development of 15 new plots between two dry dock.

There is also proposal of upgradation of existing waste management facilities for disposal of additional wastes generated from the above facilities, and labour welfare infrastructure facilities. These two components would be outside CRZ area

Upgradation of existing plots would include impervious concrete pavement, embankment of sheet piles(90 m X 60m) on the sea side of the concrete pavement, drain ditch would constructed at the edge of the concrete pavement , along side the sheet piles to capture oil and/or oily water and a pit of 1m X 1m X 2m to store oil and oily water, with oil skimmer of 1.1m X 2.7m X 1.15m to prevent oil escaping during heavy rain. 2 dry docks would be constructed(Approach Channel for each dry dock- 1.25 km long, 0.25 km, wide, Capital dredging -1x106 M3 for each dry dock, maintenance dredging 0.1x106 M3, infrastructure for decontamination of ships and temporary storage facilities for offending materials) . Out of two dry dock, one would be set up at southern end of existing yard(at 21⁰23' 33.4''N, 72⁰ 09' 59.8''E) and the 2nd would be set up at 2 km further south(at 21⁰21' 43.8''N, 72⁰ 09' 19.8''E). Each dock will be 300m long , 50m wide and 11.5m high. Docks will be linked to shore by causeway constructed over box-culvert. It was further submitted that warships, passenger ship , passenger-cum RORO vessels of more than 20,000 LDT , tankers with more than 8m draft, ships which had carried International Maritime Dangerous Goods and Ships are containing toxic paints and oily residues will be dry docked for decontamination prior to beaching. This dry dock may use for repair & maintenance of operating ships , when it is not in use for ship recycling.

15 new plots (150m X 90m each) will be developed in the area between two dry docks. The existing road running the length of the yard will be extended to link the new plots. No private land will be acquired for the proposed plot and associated infrastructure. The new plots will have concrete floors sloped towards a drain for collecting run-off water. The plots have facilities for sorting and temporary storage of wastes and rest sheds with drinking water and toilet facilities for workers.

There is no National Parks, Biosphere Reserve, Tiger Reserve, Elephant Reserve , Sanctuaries, Reserved Forests, Marine National Parks within 15 km from the proposed site. There is no mangrove within project site. No coral Reefs, Archaeological/Heritage sites, within 15 km from project site. No Turtle nesting beaches/Horse-shoe Crab habitat, biologically active mudflats, sea grass beds within 5 km from the project site.

The Alang Sosiya shoreline has been stable since 1980. Institute of Ocean Management, Anna University has reported to Ministry of Environment, Forests and Climate Change, Government of India that shoreline changes at Alang Sosiya are less than 1m i.e insignificant change, Since method of working shall remain more or less the same, no shoreline changes is anticipated due to proposed project. Ballast water on ships will be exchanged in accordance with International Conventions prior to beaching to prevent introduction of harmful organisms to Indian coastal waters. All bilge water and effluents generated during cleaning of ships will be collected and transported by tankers to effluent treatment plant at TSDF for proper treatment. The pavement of the plots will be sloped towards a drain. The drain will be routed to a engineered settling pit provided with a oil & grease trap. Solid debris generated during cutting (especially paint chips, thermocol, poly-urethane foam, rubber, plastics) will be collected, segregated, packed and sent to TSDF for disposal. Dirty water generated from the TSDF's landfills and the pollution control systems of the incinerators will also be treated at the effluent treatment plant. Sewage generated at the workers housing colony will be treated in a sewage treatment plant. At plots sewage will be treated in soak pits. Treated water will be used for industrial purposes in the yard. Unused treated water will be discharged after quality checks.

As per the CRZ map prepared and duly imposed for the proposed route of pipeline, prepared by the NCSCM, Chennai, proposed activities fall in CRZ-I(B), CRZ-III and CRZ-IV categories.

The Gujarat Coastal Zone Management Authority deliberated the proposal of GMB in its 28th meeting, held on 22-04-2016 for expansion of the Alang Ship Recycling Facilities at Alang, Dist: Bhavnagar, after detailed discussion, it is decided to recommend to the Ministry of Environment, Forests and Climate Change, Government of India to grant CRZ Clearance for their proposed project for expansion of Ship Recycling Facility at Alang with following some specific conditions

In view of the above, if approved, we may seek the Government orders for recommending the Ministry of Environment, Forests and Climate Change, Government of India to accord environmental clearance under the CRZ notification, 2011, for the proposed project for upgradation of Ship Recycling Facility at Alang by the Gujarat Maritime Board with the strict compliance of the following conditions :

1. The provisions of the CRZ notification of 2011 shall be strictly adhered to by the GMB. Only permissible activities shall be carried out in CRZ area by the GMB.
2. *The GMB Shall ensure that facilities will be developed in phase wise manner, so the GMB shall have to conduct Environmental Impact Assessment Studies before commencement of the developmental activities in next phase to ensure environmental improvement and / or sustainability of the region.*
3. *The GMB shall ensure that there shall not be any discharge of effluent directly into sea. Oily waste shall be segregated and it shall be sent to common facility for incineration.*
4. *The Dredged material shall be disposed of at a location based on scientific study to be done by the institute of National repute.*
5. *All terms and conditions specified by the Hon'ble Supreme Court of India regarding Ship Recycling Shall have to be complied with by the GMB.*
6. All necessary permissions from different Government Departments / agencies shall be obtained by GMB before commencing the exploratory drilling at the proposed location
7. All the recommendations and suggestions given by the MECON Limited , in their Environment Impact Assessment report shall be implemented strictly by GMB.
8. The GMB shall exercise extra precautions to ensure the navigation safety and mitigation of the risk associated with the project activities especially due to collision, sinking or accidents of the vessels and would deploy the latest communication and navigation aids for this purpose.
9. The cost of the external agency that may be appointed by this department for supervision / monitoring of the project activities during construction/ operational phases shall be paid by GMB
10. The GMB shall contribute financially for any common study or project that may be proposed by this Department for environmental management / conservation / improvement for the Sea coast of the State.
11. The piling activities debris and any other type of waste shall not be discharged into the sea or creek or in the CRZ areas. The debris shall be removed from the site immediately after the piling activities are over.

12. The camps shall be located outside the CRZ area and the labour shall be provided with the necessary amenities, including sanitation, water supply and fuel and it shall be ensured that the environmental conditions are not deteriorated by the labours.
13. The GMB shall prepare and regularly update their Local Oil Spill Contingency and Disaster Management Plan in consonance with the National Oil Spill and Disaster Contingency Plan.
14. The GMB shall bear the cost of the external agency that may be appointed by this Department for supervision / monitoring of proposed activities and the environmental impacts of the proposed activities.
15. The groundwater shall not be tapped to meet with the water requirements in any case.
16. The GMB shall take up greenbelt development activities in consultation with the Gujarat Institute of Desert Ecology / Forest Department / Gujarat Ecology Commission.
17. The GMB shall have to contribute financially for taking up the socio-economic upliftment activities in this region in consultation with the Forests and Environment Department and the District Collector / District Development Officer.
18. A six monthly report on compliance of the conditions mentioned in this letter shall have to be furnished by GMB on a regular basis to this Department
19. The GMB shall ensure that the numbers of the Vessels and machinery deployed during marine construction, which are a source of low level organic and PHc pollution will be optimized to minimize risks of accidents involving these vessels.
20. The noise level during transport and construction of proposed facilities shall be kept minimum.
- 21.21. The GMB shall carry out separate study for further erosion and deposition pattern in the area after dredging through a reputed agency and shall follow the suggestions of the study done by reputed agency ,for maintenance dredging, the recommendations/suggestions of the reputed agency shall be follow by the GMB.

22. Any other condition that may be stipulated by the Ministry of Environment, Forests and Climate Change, Government of India / this Department from time to time for environmental protection / management purpose shall also have to be complied with by GMB.

Thanking you

Yours sincerely,



(Hardik Shah).

Encl: As above

Copy to:

Shri Atul Sharma,
DGM, Gujarat Maritime Board,
Opp: Air Force Station,
Sector-10A
Gandhinagar --- For information please.

Appendix 9 Laboratory Report

TEST REPORT

TEST REPORT NO : CTL/CH/N-5455/16-17 DATE :22.10.2016

SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD

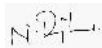
COMPANY NAME: M/s. Cholamandalam MS Risk Services Limited,
ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
Chennai - 600 001.

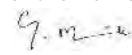
PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
SAMPLE DESCRIPTION Asbestos
SAMPLING DATE 15.10.2016
TEST END DATE 21.10.2016

| SL.NO | SAMPLE CODE | METHODS | UNITS | RESULTS |
|-------|-------------|-----------------|-----------|------------------|
| 1 | 1 | IS 11450 : 1986 | fibers/cc | 0.034 |
| 2 | 2 | | | 0.050 |
| 3 | 3 | | | 0.084 |
| 4 | 4 | | | BDL(D.L -0.001) |
| 5 | 5 | | | 0.034 |
| 6 | 6 | | | 0.050 |
| 7 | 7 | | | 0.101 |
| 8 | 8 | | | 0.017 |
| 9 | 9 | | | 0.034 |
| 10 | 10 | | | 0.050 |

BDL - Below Detection Limit(D.L - Detection Limit)

END OF REPORT


Verified by

For Chennai Testing Laboratory Pvt Ltd

Authorised Signatory

TEST REPORT

TEST REPORT NO: CTL/CH/N-3649/2016-17

DATE : 01.11.2016

SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD

COMPANY NAME **M/s. Cholamandalam MS Risk Services Limited,**
ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
Chennai - 600 001.

SAMPLE DESCRIPTION Soil (SO1)
PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
PLOT NO. V-6
SAMPLING LOCATION Khushboo India Pvt. Ltd.,
GPS READING 21°26'17.40"N 72°13'19.56"E
SAMPLE QUANTITY 1 Kg
PACKING Received in Packed Condition
SAMPLING DATE 16.08.2016
SAMPLE RECEIVED ON 19.08.2016
ANALYSIS STARTED ON 20.08.2016
ANALYSIS COMPLETED ON 31.10.2016

| S.NO | PARAMETERS | METHOD | UNITS | RESULTS | |
|------|---|--|-------|-----------------|---------------|
| 1 | Moisture | IS 2720 (Part 2):1973 (R.2010) | % | 7.60 | |
| 2 | Total Organic Carbon | FAO Method (Pg. No.61) 2007 (walkley Black wet combustion method) | % | 0.21 | |
| 3 | Cadmium as Cd | EPA 3050B-1996 (Rev-2)/EPA 7130-1986 | mg/kg | BDL (DL:2.0) | |
| 4 | Hexavalent Chromium as Cr ⁶⁺ | EPA Method - 7196A:1992 (Rev-1) | mg/kg | BDL (DL:0.1) | |
| 5 | Lead as Pb | EPA 3050B-1996 (Rev-2)/EPA 7420-1986 | mg/kg | 58.59 | |
| 6 | Mercury as Hg | EPA 7471A-2007 (Rev-2) | mg/kg | BDL (DL:0.2) | |
| 7 | Particle Size Distribution: | | | Retained | Passed |
| | 2.8 mm | FAO Method | % | 22.36 | 77.64 |
| | 2.0 mm | | % | 8.23 | 69.41 |
| | 1.7 mm | | % | 3.15 | 66.26 |
| | 0.85 mm | | % | 15.10 | 51.16 |
| | 0.71 mm | | % | 2.36 | 48.80 |
| | 0.60 mm | | % | 3.50 | 45.30 |
| | 0.50 mm | | % | 5.90 | 39.4 |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
Verified by

A. Dhanraj
Authorised Signatory

TEST REPORT

TEST REPORT NO: CTL/CH/N-3649/2016-17

DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------------------------|---|-----------------------|--------------|--------------|
| 8 | Poly Nuclear Aromatic Hydrocarbons(as PAH) | | | |
| | Naphthalene | CTL/SOP/SOIL/124-2014 | mg/kg | 0.051 |
| | Acenaphthylene | | mg/kg | 0.024 |
| | 2-Bromo-Naphthalene | | mg/kg | BDL(DL:0.02) |
| | Acenaphthene | | mg/kg | 0.018 |
| | Fluorene | | mg/kg | 0.088 |
| | Phenanthrene | | mg/kg | 0.056 |
| | Anthracene | | mg/kg | 0.024 |
| | Pyrene | | mg/kg | 0.019 |
| | Fluoranthene | | mg/kg | BDL(DL:0.02) |
| | Chrysene | | mg/kg | 0.054 |
| | Benz[a]anthracene | | mg/kg | BDL(DL:0.02) |
| | Benzo[a]pyrene | | mg/kg | BDL(DL:0.02) |
| | Benzo[b]fluoranthene | | mg/kg | BDL(DL:0.03) |
| | Benzo[ghi]perylene | | mg/kg | BDL(DL:0.03) |
| Dibenz[a,h]anthracene | mg/kg | | BDL(DL:0.03) | |
| Indeno[1,2,3-cd]pyrene | mg/kg | BDL(DL:0.04) | | |
| 9 | Poly Chlorinated Biphenyls(as PCB) | | | |
| | 2-Chlorobiphenyl | CTL/SOP/SOIL/132-2014 | mg/kg | BDL(DL:0.01) |
| | 2,3-dichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,5,4'-Trichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-tetrachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,4',6'-Pentachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5',6-Hexachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,4',6-Heptachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,5,6,6'-Octachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PCB | | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd


Verified by


Authorised Signatory

Page 2 of 3

TEST REPORT

TEST REPORT NO: CTL/CH/N-3649/2016-17

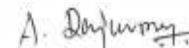
DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|-------|--|-----------------------|-----------------------|--------------|
| 10 | Poly Brominated Biphenyls(as PBB) | | | |
| | 2,3,3',4,4',5-Hexabromobiphenyl | CTL/SOP/SOIL/139-2014 | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 3,3',4,4'-Tetrabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 3,3',4,4',5-Pentabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Decabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PBB | | mg/kg | BDL(DL:0.01) |
| 11 | Poly Bromo Diethyl Ether (as PBDE) | | | |
| | 2,2',4,4',5,5'-Hexabromobiphenylether | CTL/SOP/SOIL/147-2014 | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5-Pentabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',6-Pentabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-Tetrabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | Sum of PBDE | | mg/kg | BDL(DL:0.01) |
| 12 | Polychlorinated Naphthalene | | CTL/SOP/SOIL/151-2014 | mg/kg |
| 13 | Tributyltin | CTL/SOP/SOIL/158-2014 | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd



Authorised Signatory

7-2-1
Verified by

Page 3 of 3

TEST REPORT

TEST REPORT NO: CTL/CH/N-3650/2016-17

DATE : 01.11.2016

SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD

COMPANY NAME **M/s. Cholamandalam MS Risk Services Limited,**
 ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
 Chennai - 600 001.

SAMPLE DESCRIPTION Soil (SO2)
 PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
 PLOT NO. 136
 SAMPLING LOCATION M.V.Ship Trade Pvt. Ltd.
 GPS READING 21°25'38.92"N 72°12'52.73"E
 SAMPLE QUANTITY 1 Kg
 PACKING Received in Packed Condition
 SAMPLING DATE 16.08.2016
 SAMPLE RECEIVED ON 19.08.2016
 ANALYSIS STARTED ON 20.08.2016
 ANALYSIS COMPLETED ON 31.10.2016

| S.NO | PARAMETERS | METHOD | UNITS | RESULTS | |
|------|---|--|-------|-----------------|---------------|
| 1 | Moisture | IS 2720 (Part 2):1973 (R.2010) | % | 10.33 | |
| 2 | Total Organic Carbon | FAO Method (Pg. No.61) 2007 (walkley Black wet combustion method) | % | 0.22 | |
| 3 | Cadmium as Cd | EPA 3050B-1996 (Rev-2)/EPA 7130-1986 | mg/kg | BDL (DL:2.0) | |
| 4 | Hexavalent Chromium as Cr ⁶⁺ | EPA Method - 7196A:1992 (Rev-1) | mg/kg | BDL (DL:0.1) | |
| 5 | Lead as Pb | EPA 3050B-1996 (Rev-2)/EPA 7420-1986 | mg/kg | 34.00 | |
| 6 | Mercury as Hg | EPA 7471A-2007 (Rev-2) | mg/kg | BDL (DL:0.2) | |
| 7 | Particle Size Distribution: | | | Retained | Passed |
| | 2.8 mm | FAO Method | % | 30.69 | 69.31 |
| | 2.0 mm | | % | 10.12 | 59.19 |
| | 1.7 mm | | % | 5.20 | 53.99 |
| | 0.85 mm | | % | 8.63 | 45.36 |
| | 0.71 mm | | % | 2.98 | 42.38 |
| | 0.60 mm | | % | 4.10 | 38.28 |
| | 0.50 mm | | % | 7.50 | 30.78 |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
Verified by

A. Dhanraj
Authorised Signatory

TEST REPORT

TEST REPORT NO: CTL/CH/N-3650/2016-17

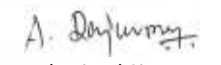
DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------------------------|---|-----------------------|--------------|--------------|
| 8 | Poly Nuclear Aromatic Hydrocarbons(as PAH) | | | |
| | Naphthalene | CTL/SOP/SOIL/124-2014 | mg/kg | 0.043 |
| | Acenaphthylene | | mg/kg | 0.016 |
| | 2-Bromo-Naphthalene | | mg/kg | BDL(DL:0.02) |
| | Acenaphthene | | mg/kg | 0.021 |
| | Fluorene | | mg/kg | 0.074 |
| | Phenanthrene | | mg/kg | 0.045 |
| | Anthracene | | mg/kg | 0.038 |
| | Pyrene | | mg/kg | 0.052 |
| | Fluoranthene | | mg/kg | BDL(DL:0.02) |
| | Chrysene | | mg/kg | 0.017 |
| | Benz[a]anthracene | | mg/kg | BDL(DL:0.02) |
| | Benzo[a]pyrene | | mg/kg | BDL(DL:0.02) |
| | Benzo[b]fluoranthene | | mg/kg | BDL(DL:0.03) |
| | Benzo[ghi]perylene | | mg/kg | BDL(DL:0.03) |
| Dibenz[a,h]anthracene | mg/kg | | BDL(DL:0.03) | |
| Indeno[1,2,3-cd]pyrene | mg/kg | BDL(DL:0.04) | | |
| 9 | Poly Chlorinated Biphenyls(as PCB) | | | |
| | 2-Chlorobiphenyl | CTL/SOP/SOIL/132-2014 | mg/kg | BDL(DL:0.01) |
| | 2,3-dichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,5,4'-Trichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-tetrachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,4',6'-Pentachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5',6-Hexachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,4',6-Heptachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,5,6,6'-Octachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PCB | | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd


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TEST REPORT

TEST REPORT NO: CTL/CH/N-3650/2016-17

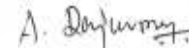
DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|-------|--|-----------------------|-------|--------------|
| 10 | Poly Brominated Biphenyls(as PBB) | CTL/SOP/SOIL/139-2014 | mg/kg | BDL(DL:0.01) |
| | 2,3,3',4,4',5-Hexabromobiphenyl | | | |
| | 2,2',4,4',5,5'-Hexabromobiphenyl | | | |
| | 3,3',4,4'-Tetrabromobiphenyl | | | |
| | 3,3',4,4',5-Pentabromobiphenyl | | | |
| | Decabromobiphenyl | | | |
| | Sum of PBB | | | |
| 11 | Poly Bromo Diethyl Ether (as PBDE) | CTL/SOP/SOIL/147-2014 | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromobiphenylether | | | |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | | | |
| | 2,2',4,4',5-Pentabromodiphenylether | | | |
| | 2,2',4,4',6-Pentabromodiphenylether | | | |
| | 2,2',4,4'-Tetrabromodiphenylether | | | |
| | Sum of PBDE | | | |
| 12 | Polychlorinated Naphthalene | CTL/SOP/SOIL/151-2014 | mg/kg | BDL(DL:0.01) |
| 13 | Tributyltin | CTL/SOP/SOIL/158-2014 | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd



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TEST REPORT

TEST REPORT NO: CTL/CH/N-3651/2016-17

DATE : 01.11.2016

SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD

COMPANY NAME **M/s. Cholamandalam MS Risk Services Limited,**
 ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
 Chennai - 600 001.

SAMPLE DESCRIPTION Soil (SO3)
 PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
 PLOT NO. 120M
 SAMPLING LOCATION G.K.Steel Pvt.Ltd.
 GPS READING 21°25'25.04"N 72°12'42.81"E
 SAMPLE QUANTITY 1 Kg
 PACKING Received in Packed Condition
 SAMPLING DATE 16.08.2016
 SAMPLE RECEIVED ON 19.08.2016
 ANALYSIS STARTED ON 20.08.2016
 ANALYSIS COMPLETED ON 31.10.2016

| S.NO | PARAMETERS | METHOD | UNITS | RESULTS | |
|------|---|--|-------|-----------------|---------------|
| 1 | Moisture | IS 2720 (Part 2):1973 (R.2010) | % | 7.13 | |
| 2 | Total Organic Carbon | FAO Method (Pg. No.61) 2007 (walkley Black wet combustion method) | % | 0.35 | |
| 3 | Cadmium as Cd | EPA 3050B-1996 (Rev-2)/EPA 7130-1986 | mg/kg | BDL (DL:2.0) | |
| 4 | Hexavalent Chromium as Cr ⁶⁺ | EPA Method - 7196A:1992 (Rev-1) | mg/kg | BDL (DL:0.1) | |
| 5 | Lead as Pb | EPA 3050B-1996 (Rev-2)/EPA 7420-1986 | mg/kg | 10.26 | |
| 6 | Mercury as Hg | EPA 7471A-2007 (Rev-2) | mg/kg | BDL (DL:0.2) | |
| 7 | Particle Size Distribution: | | | Retained | Passed |
| | 2.8 mm | FAO Method | % | 38.71 | 61.29 |
| | 2.0 mm | | % | 5.77 | 55.52 |
| | 1.7 mm | | % | 2.30 | 53.22 |
| | 0.85 mm | | % | 11.30 | 41.92 |
| | 0.71 mm | | % | 1.77 | 40.15 |
| | 0.60 mm | | % | 2.85 | 37.30 |
| | 0.50 mm | | % | 6.55 | 30.75 |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd

Verified by

A. Dhanraj
 Authorised Signatory

TEST REPORT

TEST REPORT NO: CTL/CH/N-3651/2016-17

DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------------------------|---|-----------------------|--------------|--------------|
| 8 | Poly Nuclear Aromatic Hydrocarbons(as PAH) | | | |
| | Naphthalene | CTL/SOP/SOIL/124-2014 | mg/kg | BDL(DL:0.01) |
| | Acenaphthylene | | mg/kg | BDL(DL:0.01) |
| | 2-Bromo-Naphthalene | | mg/kg | BDL(DL:0.02) |
| | Acenaphthene | | mg/kg | BDL(DL:0.02) |
| | Fluorene | | mg/kg | BDL(DL:0.02) |
| | Phenanthrene | | mg/kg | BDL(DL:0.02) |
| | Anthracene | | mg/kg | BDL(DL:0.02) |
| | Pyrene | | mg/kg | BDL(DL:0.02) |
| | Fluoranthene | | mg/kg | BDL(DL:0.02) |
| | Chrysene | | mg/kg | BDL(DL:0.02) |
| | Benz[a]anthracene | | mg/kg | BDL(DL:0.02) |
| | Benzo[a]pyrene | | mg/kg | BDL(DL:0.02) |
| | Benzo[b]fluoranthene | | mg/kg | BDL(DL:0.03) |
| | Benzo[ghi]perylene | | mg/kg | BDL(DL:0.03) |
| Dibenz[a,h]anthracene | mg/kg | | BDL(DL:0.03) | |
| Indeno[1,2,3-cd]pyrene | mg/kg | BDL(DL:0.04) | | |
| 9 | Poly Chlorinated Biphenyls(as PCB) | | | |
| | 2-Chlorobiphenyl | CTL/SOP/SOIL/132-2014 | mg/kg | BDL(DL:0.01) |
| | 2,3-dichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,5,4'-Trichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-tetrachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,4',6'-Pentachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5',6'-Hexachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,4',6'-Heptachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,5,6,6'-Octachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PCB | | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
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A. D. Jeyaraj
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TEST REPORT

TEST REPORT NO: CTL/CH/N-3651/2016-17

DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|-------|--|-----------------------|-------|--------------|
| 10 | Poly Brominated Biphenyls (as PBB) | CTL/SOP/SOIL/139-2014 | mg/kg | BDL(DL:0.01) |
| | 2,3,3',4,4',5-Hexabromobiphenyl | | | |
| | 2,2',4,4',5,5'-Hexabromobiphenyl | | | |
| | 3,3',4,4'-Tetrabromobiphenyl | | | |
| | 3,3',4,4',5-Pentabromobiphenyl | | | |
| | Decabromobiphenyl | | | |
| | Sum of PBB | | | |
| 11 | Poly Bromo Diethyl Ether (as PBDE) | CTL/SOP/SOIL/147-2014 | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromobiphenylether | | | |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | | | |
| | 2,2',4,4',5-Pentabromodiphenylether | | | |
| | 2,2',4,4',6-Pentabromodiphenylether | | | |
| | 2,2',4,4'-Tetrabromodiphenylether | | | |
| | Sum of PBDE | | | |
| 12 | Polychlorinated Naphthalene | CTL/SOP/SOIL/151-2014 | mg/kg | BDL(DL:0.01) |
| 13 | Tributyltin | CTL/SOP/SOIL/158-2014 | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd



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TEST REPORT

TEST REPORT NO: CTL/CH/N-3652/2016-17

DATE : 01.11.2016

SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD

COMPANY NAME **M/s. Cholamandalam MS Risk Services Limited,**
 ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
 Chennai - 600 001.

SAMPLE DESCRIPTION Soil (SO4)
 PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
 PLOT NO. V2
 SAMPLING LOCATION Hooghly Ship Breakers Ltd.
 GPS READING 21°25'05.69"N 72°12'19.42"E
 SAMPLE QUANTITY 1 Kg
 PACKING Received in Packed Condition
 SAMPLING DATE 16.08.2016
 SAMPLE RECEIVED ON 19.08.2016
 ANALYSIS STARTED ON 20.08.2016
 ANALYSIS COMPLETED ON 31.10.2016

| S.NO | PARAMETERS | METHOD | UNITS | RESULTS | |
|------|---|--|-------|-----------------|---------------|
| 1 | Moisture | IS 2720 (Part 2):1973 (R.2010) | % | 4.68 | |
| 2 | Total Organic Carbon | FAO Method (Pg. No.61) 2007 (walkley Black wet combustion method) | % | 0.31 | |
| 3 | Cadmium as Cd | EPA 3050B-1996 (Rev-2)/EPA 7130-1986 | mg/kg | BDL (DL:2.0) | |
| 4 | Hexavalent Chromium as Cr ⁶⁺ | EPA Method - 7196A:1992 (Rev-1) | mg/kg | BDL (DL:0.1) | |
| 5 | Lead as Pb | EPA 3050B-1996 (Rev-2)/EPA 7420-1986 | mg/kg | 39.86 | |
| 6 | Mercury as Hg | EPA 7471A-2007 (Rev-2) | mg/kg | BDL (DL:0.2) | |
| 7 | Particle Size Distribution: | | | Retained | Passed |
| | 2.8 mm | FAO Method | % | 20.40 | 79.6 |
| | 2.0 mm | | % | 8.55 | 71.05 |
| | 1.7 mm | | % | 2.63 | 68.42 |
| | 0.85 mm | | % | 12.60 | 55.82 |
| | 0.71 mm | | % | 5.12 | 50.70 |
| | 0.60 mm | | % | 3.80 | 46.90 |
| | 0.50 mm | | % | 2.10 | 44.8 |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
Verified by

A. Srinivasan
Authorised Signatory

TEST REPORT

TEST REPORT NO: CTL/CH/N-3652/2016-17

DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------------------------|---|-----------------------|--------------|--------------|
| 8 | Poly Nuclear Aromatic Hydrocarbons(as PAH) | | | |
| | Naphthalene | CTL/SOP/SOIL/124-2014 | mg/kg | 0.025 |
| | Acenaphthylene | | mg/kg | 0.031 |
| | 2-Bromo-Naphthalene | | mg/kg | BDL(DL:0.02) |
| | Acenaphthene | | mg/kg | 0.017 |
| | Fluorene | | mg/kg | 0.054 |
| | Phenanthrene | | mg/kg | 0.063 |
| | Anthracene | | mg/kg | 0.032 |
| | Pyrene | | mg/kg | 0.015 |
| | Fluoranthene | | mg/kg | BDL(DL:0.02) |
| | Chrysene | | mg/kg | 0.091 |
| | Benz[a]anthracene | | mg/kg | BDL(DL:0.02) |
| | Benzo[a]pyrene | | mg/kg | BDL(DL:0.02) |
| | Benzo[b]fluoranthene | | mg/kg | BDL(DL:0.03) |
| | Benzo[ghi]perylene | | mg/kg | BDL(DL:0.03) |
| Dibenz[a,h]anthracene | mg/kg | | BDL(DL:0.03) | |
| Indeno[1,2,3-cd]pyrene | mg/kg | BDL(DL:0.04) | | |
| 9 | Poly Chlorinated Biphenyls(as PCB) | | | |
| | 2-Chlorobiphenyl | CTL/SOP/SOIL/132-2014 | mg/kg | BDL(DL:0.01) |
| | 2,3-dichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,5,4'-Trichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-tetrachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,4',6'-Pentachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5',6'-Hexachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,4',6'-Heptachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,5,6,6'-Octachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PCB | | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
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TEST REPORT

TEST REPORT NO: CTL/CH/N-3652/2016-17

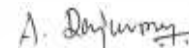
DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|-------|--|-----------------------|-----------------------|--------------|
| 10 | Poly Brominated Biphenyls(as PBB) | | | |
| | 2,3,3',4,4',5-Hexabromobiphenyl | CTL/SOP/SOIL/139-2014 | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 3,3',4,4'-Tetrabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 3,3',4,4',5-Pentabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Decabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PBB | | mg/kg | BDL(DL:0.01) |
| 11 | Poly Bromo Diethyl Ether (as PBDE) | | | |
| | 2,2',4,4',5,5'-Hexabromobiphenylether | CTL/SOP/SOIL/147-2014 | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5-Pentabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',6-Pentabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-Tetrabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | Sum of PBDE | | mg/kg | BDL(DL:0.01) |
| 12 | Polychlorinated Naphthalene | | CTL/SOP/SOIL/151-2014 | mg/kg |
| 13 | Tributyltin | CTL/SOP/SOIL/158-2014 | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd



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TEST REPORT

TEST REPORT NO: CTL/CH/N-3653/2016-17

DATE : 01.11.2016

SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD

COMPANY NAME **M/s. Cholamandalam MS Risk Services Limited,**
 ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
 Chennai - 600 001.

SAMPLE DESCRIPTION Soil (SO5)
 PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
 PLOT NO. 89/90
 SAMPLING LOCATION GMB Plot
 GPS READING 21°24'50.92"N 72°12'05.26"E
 SAMPLE QUANTITY 1 Kg
 PACKING Received in Packed Condition
 SAMPLING DATE 16.08.2016
 SAMPLE RECEIVED ON 19.08.2016
 ANALYSIS STARTED ON 20.08.2016
 ANALYSIS COMPLETED ON 31.10.2016

| S.NO | PARAMETERS | METHOD | UNITS | RESULTS | |
|------|---|--|-------|-----------------|---------------|
| 1 | Moisture | IS 2720 (Part 2):1973 (R.2010) | % | 3.75 | |
| 2 | Total Organic Carbon | FAO Method (Pg. No.61) 2007 (walkley Black wet combustion method) | % | 0.44 | |
| 3 | Cadmium as Cd | EPA 3050B-1996 (Rev-2)/EPA 7130-1986 | mg/kg | BDL (DL:2.0) | |
| 4 | Hexavalent Chromium as Cr ⁶⁺ | EPA Method - 7196A:1992 (Rev-1) | mg/kg | BDL (DL:0.1) | |
| 5 | Lead as Pb | EPA 3050B-1996 (Rev-2)/EPA 7420-1986 | mg/kg | 108.31 | |
| 6 | Mercury as Hg | EPA 7471A-2007 (Rev-2) | mg/kg | BDL (DL:0.2) | |
| 7 | Particle Size Distribution: | | | Retained | Passed |
| | 2.8 mm | FAO Method | % | 40.80 | 59.2 |
| | 2.0 mm | | % | 5.65 | 53.55 |
| | 1.7 mm | | % | 4.15 | 49.4 |
| | 0.85 mm | | % | 7.59 | 41.81 |
| | 0.71 mm | | % | 4.15 | 37.66 |
| | 0.60 mm | | % | 7.10 | 30.56 |
| | 0.50 mm | | % | 3.54 | 27.02 |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd

N. R. L.
Verified by

A. Jayaram
Authorised Signatory

TEST REPORT

TEST REPORT NO: CTL/CH/N-3653/2016-17

DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------------------------|---|-----------------------|--------------|--------------|
| 8 | Poly Nuclear Aromatic Hydrocarbons(as PAH) | | | |
| | Naphthalene | CTL/SOP/SOIL/124-2014 | mg/kg | 0.074 |
| | Acenaphthylene | | mg/kg | 0.027 |
| | 2-Bromo-Naphthalene | | mg/kg | BDL(DL:0.02) |
| | Acenaphthene | | mg/kg | 0.041 |
| | Fluorene | | mg/kg | 0.167 |
| | Phenanthrene | | mg/kg | 0.074 |
| | Anthracene | | mg/kg | 0.048 |
| | Pyrene | | mg/kg | 0.036 |
| | Fluoranthene | | mg/kg | BDL(DL:0.02) |
| | Chrysene | | mg/kg | 0.185 |
| | Benz[a]anthracene | | mg/kg | BDL(DL:0.02) |
| | Benzo[a]pyrene | | mg/kg | BDL(DL:0.02) |
| | Benzo[b]fluoranthene | | mg/kg | BDL(DL:0.03) |
| | Benzo[ghi]perylene | | mg/kg | BDL(DL:0.03) |
| Dibenz[a,h]anthracene | mg/kg | | BDL(DL:0.03) | |
| Indeno[1,2,3-cd]pyrene | mg/kg | BDL(DL:0.04) | | |
| 9 | Poly Chlorinated Biphenyls(as PCB) | | | |
| | 2-Chlorobiphenyl | CTL/SOP/SOIL/132-2014 | mg/kg | BDL(DL:0.01) |
| | 2,3-dichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,5,4'-Trichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-tetrachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,4',6'-Pentachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5',6'-Hexachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,4',6'-Heptachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,5,6,6'-Octachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PCB | | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd


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TEST REPORT

TEST REPORT NO: CTL/CH/N-3653/2016-17

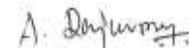
DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|-------|--|-----------------------|-------|--------------|
| 10 | Poly Brominated Biphenyls (as PBB) | CTL/SOP/SOIL/139-2014 | mg/kg | BDL(DL:0.01) |
| | 2,3,3',4,4',5-Hexabromobiphenyl | | | |
| | 2,2',4,4',5,5'-Hexabromobiphenyl | | | |
| | 3,3',4,4'-Tetrabromobiphenyl | | | |
| | 3,3',4,4',5-Pentabromobiphenyl | | | |
| | Decabromobiphenyl | | | |
| | Sum of PBB | | | |
| 11 | Poly Bromo Diethyl Ether (as PBDE) | CTL/SOP/SOIL/147-2014 | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromobiphenylether | | | |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | | | |
| | 2,2',4,4',5-Pentabromodiphenylether | | | |
| | 2,2',4,4',6-Pentabromodiphenylether | | | |
| | 2,2',4,4'-Tetrabromodiphenylether | | | |
| | Sum of PBDE | | | |
| 12 | Polychlorinated Naphthalene | CTL/SOP/SOIL/151-2014 | mg/kg | BDL(DL:0.01) |
| 13 | Tributyltin | CTL/SOP/SOIL/158-2014 | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd



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TEST REPORT

TEST REPORT NO: CTL/CH/N-3654/2016-17 DATE : 01.11.2016

SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD

COMPANY NAME **M/s. Cholamandalam MS Risk Services Limited,**
 ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
 Chennai - 600 001.

SAMPLE DESCRIPTION Soil (SO6)
 PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
 PLOT NO. 51
 SAMPLING LOCATION Goyal Traders
 GPS READING 21°24'34.01"N 72°11'46.84"E
 SAMPLE QUANTITY 1 Kg
 PACKING Received in Packed Condition
 SAMPLING DATE 16.08.2016
 SAMPLE RECEIVED ON 19.08.2016
 ANALYSIS STARTED ON 20.08.2016
 ANALYSIS COMPLETED ON 31.10.2016

| S.NO | PARAMETERS | METHOD | UNITS | RESULTS | |
|------|---|--|-------|-----------------|---------------|
| 1 | Moisture | IS 2720 (Part 2):1973 (R.2010) | % | 5.11 | |
| 2 | Total Organic Carbon | FAO Method (Pg. No.61) 2007 (walkley Black wet combustion method) | % | 0.30 | |
| 3 | Cadmium as Cd | EPA 3050B-1996 (Rev-2)/EPA 7130-1986 | mg/kg | BDL (DL:2.0) | |
| 4 | Hexavalent Chromium as Cr ⁶⁺ | EPA Method - 7196A:1992 (Rev-1) | mg/kg | BDL (DL:0.1) | |
| 5 | Lead as Pb | EPA 3050B-1996 (Rev-2)/EPA 7420-1986 | mg/kg | 16.74 | |
| 6 | Mercury as Hg | EPA 7471A-2007 (Rev-2) | mg/kg | BDL (DL:0.2) | |
| 7 | Particle Size Distribution: | | | Retained | Passed |
| | 2.8 mm | FAO Method | % | 35.24 | 64.76 |
| | 2.0 mm | | % | 4.50 | 60.26 |
| | 1.7 mm | | % | 2.87 | 57.39 |
| | 0.85 mm | | % | 10.85 | 46.54 |
| | 0.71 mm | | % | 3.58 | 42.96 |
| | 0.60 mm | | % | 3.50 | 39.46 |
| | 0.50 mm | | % | 7.15 | 32.31 |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
Verified by

A. Dhanraj
Authorised Signatory

TEST REPORT

TEST REPORT NO: CTL/CH/N-3654/2016-17

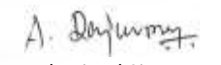
DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------------------------|---|-----------------------|--------------|--------------|
| 8 | Poly Nuclear Aromatic Hydrocarbons(as PAH) | | | |
| | Naphthalene | CTL/SOP/SOIL/124-2014 | mg/kg | BDL(DL:0.01) |
| | Acenaphthylene | | mg/kg | BDL(DL:0.01) |
| | 2-Bromo-Naphthalene | | mg/kg | BDL(DL:0.02) |
| | Acenaphthene | | mg/kg | 0.012 |
| | Fluorene | | mg/kg | 0.22 |
| | Phenanthrene | | mg/kg | 0.15 |
| | Anthracene | | mg/kg | 0.193 |
| | Pyrene | | mg/kg | 1.00 |
| | Fluoranthene | | mg/kg | BDL(DL:0.02) |
| | Chrysene | | mg/kg | 0.451 |
| | Benz[a]anthracene | | mg/kg | BDL(DL:0.02) |
| | Benzo[a]pyrene | | mg/kg | BDL(DL:0.02) |
| | Benzo[b]fluoranthene | | mg/kg | BDL(DL:0.03) |
| | Benzo[ghi]perylene | | mg/kg | BDL(DL:0.03) |
| Dibenz[a,h]anthracene | mg/kg | | BDL(DL:0.03) | |
| Indeno[1,2,3-cd]pyrene | mg/kg | BDL(DL:0.04) | | |
| 9 | Poly Chlorinated Biphenyls(as PCB) | | | |
| | 2-Chlorobiphenyl | CTL/SOP/SOIL/132-2014 | mg/kg | BDL(DL:0.01) |
| | 2,3-dichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,5,4'-Trichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-tetrachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,4',6'-Pentachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5',6'-Hexachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,4',6'-Heptachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,5,6,6'-Octachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PCB | | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd


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TEST REPORT

TEST REPORT NO: CTL/CH/N-3654/2016-17

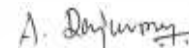
DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|-------|--|-----------------------|-------|--------------|
| 10 | Poly Brominated Biphenyls(as PBB) | CTL/SOP/SOIL/139-2014 | mg/kg | BDL(DL:0.01) |
| | 2,3,3',4,4',5-Hexabromobiphenyl | | | |
| | 2,2',4,4',5,5'-Hexabromobiphenyl | | | |
| | 3,3',4,4'-Tetrabromobiphenyl | | | |
| | 3,3',4,4',5-Pentabromobiphenyl | | | |
| | Decabromobiphenyl | | | |
| | Sum of PBB | | | |
| 11 | Poly Bromo Diethyl Ether (as PBDE) | CTL/SOP/SOIL/147-2014 | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromobiphenylether | | | |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | | | |
| | 2,2',4,4',5-Pentabromodiphenylether | | | |
| | 2,2',4,4',6-Pentabromodiphenylether | | | |
| | 2,2',4,4'-Tetrabromodiphenylether | | | |
| | Sum of PBDE | | | |
| 12 | Polychlorinated Naphthalene | CTL/SOP/SOIL/151-2014 | mg/kg | BDL(DL:0.01) |
| 13 | Tributyltin | CTL/SOP/SOIL/158-2014 | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd



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TEST REPORT

TEST REPORT NO: CTL/CH/N-3655/2016-17

DATE : 01.11.2016

SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD

COMPANY NAME **M/s. Cholamandalam MS Risk Services Limited,**
 ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
 Chennai - 600 001.

SAMPLE DESCRIPTION Soil (SO7)
 PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
 PLOT NO. 42
 SAMPLING LOCATION Virendra & Company
 GPS READING 21°24'21.94"N 72°11'35.29"E
 SAMPLE QUANTITY 1 Kg
 PACKING Received in Packed Condition
 SAMPLING DATE 16.08.2016
 SAMPLE RECEIVED ON 19.08.2016
 ANALYSIS STARTED ON 20.08.2016
 ANALYSIS COMPLETED ON 31.10.2016

| S.NO | PARAMETERS | METHOD | UNITS | RESULTS | |
|------|---|--|-------|-----------------|---------------|
| 1 | Moisture | IS 2720 (Part 2):1973 (R.2010) | % | 7.42 | |
| 2 | Total Organic Carbon | FAO Method (Pg. No.61) 2007 (walkley Black wet combustion method) | % | 0.29 | |
| 3 | Cadmium as Cd | EPA 3050B-1996 (Rev-2)/EPA 7130-1986 | mg/kg | BDL (DL:2.0) | |
| 4 | Hexavalent Chromium as Cr ⁶⁺ | EPA Method - 7196A:1992 (Rev-1) | mg/kg | BDL (DL:0.1) | |
| 5 | Lead as Pb | EPA 3050B-1996 (Rev-2)/EPA 7420-1986 | mg/kg | 51.42 | |
| 6 | Mercury as Hg | EPA 7471A-2007 (Rev-2) | mg/kg | BDL (DL:0.2) | |
| 7 | Particle Size Distribution: | | | Retained | Passed |
| | 2.8 mm | FAO Method | % | 30.15 | 69.85 |
| | 2.0 mm | | % | 8.12 | 61.73 |
| | 1.7 mm | | % | 4.10 | 57.63 |
| | 0.85 mm | | % | 9.50 | 48.13 |
| | 0.71 mm | | % | 2.44 | 45.69 |
| | 0.60 mm | | % | 4.36 | 41.33 |
| | 0.50 mm | | % | 7.12 | 34.21 |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
Verified by

A. Jayaram
Authorised Signatory

TEST REPORT

TEST REPORT NO: CTL/CH/N-3655/2016-17

DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------------------------|---|-----------------------|--------------|--------------|
| 8 | Poly Nuclear Aromatic Hydrocarbons(as PAH) | | | |
| | Naphthalene | CTL/SOP/SOIL/124-2014 | mg/kg | 0.041 |
| | Acenaphthylene | | mg/kg | 0.021 |
| | 2-Bromo-Naphthalene | | mg/kg | BDL(DL:0.02) |
| | Acenaphthene | | mg/kg | 0.064 |
| | Fluorene | | mg/kg | 0.084 |
| | Phenanthrene | | mg/kg | 0.113 |
| | Anthracene | | mg/kg | 0.016 |
| | Pyrene | | mg/kg | 0.045 |
| | Fluoranthene | | mg/kg | BDL(DL:0.02) |
| | Chrysene | | mg/kg | 0.152 |
| | Benz[a]anthracene | | mg/kg | BDL(DL:0.02) |
| | Benzo[a]pyrene | | mg/kg | BDL(DL:0.02) |
| | Benzo[b]fluoranthene | | mg/kg | BDL(DL:0.03) |
| | Benzo[ghi]perylene | | mg/kg | BDL(DL:0.03) |
| Dibenz[a,h]anthracene | mg/kg | | BDL(DL:0.03) | |
| Indeno[1,2,3-cd]pyrene | mg/kg | BDL(DL:0.04) | | |
| 9 | Poly Chlorinated Biphenyls(as PCB) | | | |
| | 2-Chlorobiphenyl | CTL/SOP/SOIL/132-2014 | mg/kg | BDL(DL:0.01) |
| | 2,3-dichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,5,4'-Trichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-tetrachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,4',6'-Pentachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5',6'-Hexachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,4',6'-Heptachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,5,6,6'-Octachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PCB | | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd

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TEST REPORT

TEST REPORT NO: CTL/CH/N-3655/2016-17

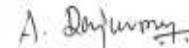
DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|-------|--|-----------------------|-------|--------------|
| 10 | Poly Brominated Biphenyls(as PBB) | CTL/SOP/SOIL/139-2014 | mg/kg | BDL(DL:0.01) |
| | 2,3,3',4,4',5-Hexabromobiphenyl | | | |
| | 2,2',4,4',5,5'-Hexabromobiphenyl | | | |
| | 3,3',4,4'-Tetrabromobiphenyl | | | |
| | 3,3',4,4',5-Pentabromobiphenyl | | | |
| | Decabromobiphenyl | | | |
| | Sum of PBB | | | |
| 11 | Poly Bromo Diethyl Ether (as PBDE) | CTL/SOP/SOIL/147-2014 | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromobiphenylether | | | |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | | | |
| | 2,2',4,4',5-Pentabromodiphenylether | | | |
| | 2,2',4,4',6-Pentabromodiphenylether | | | |
| | 2,2',4,4'-Tetrabromodiphenylether | | | |
| | Sum of PBDE | | | |
| 12 | Polychlorinated Naphthalene | CTL/SOP/SOIL/151-2014 | mg/kg | BDL(DL:0.01) |
| 13 | Tributyltin | CTL/SOP/SOIL/158-2014 | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd



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TEST REPORT

TEST REPORT NO: CTL/CH/N-3656/2016-17

DATE : 01.11.2016

SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD

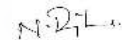
COMPANY NAME **M/s. Cholamandalam MS Risk Services Limited,**
 ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
 Chennai - 600 001.

SAMPLE DESCRIPTION Soil (SO8)
 PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
 PLOT NO. 36
 SAMPLING LOCATION Shiv Recycling Company
 GPS READING 21°24'15.75"N 72°11'27.14"E
 SAMPLE QUANTITY 1 Kg
 PACKING 16.08.2016
 SAMPLING DATE Received in Packed Condition
 SAMPLE RECEIVED ON 19.08.2016
 ANALYSIS STARTED ON 20.08.2016
 ANALYSIS COMPLETED ON 31.10.2016

| S.NO | PARAMETERS | METHOD | UNITS | RESULTS | |
|------|---|--|-------|-----------------|---------------|
| 1 | Moisture | IS 2720 (Part 2):1973 (R.2010) | % | 6.93 | |
| 2 | Total Organic Carbon | FAO Method (Pg. No.61) 2007 (walkley Black wet combustion method) | % | 0.26 | |
| 3 | Cadmium as Cd | EPA 3050B-1996 (Rev-2)/EPA 7130-1986 | mg/kg | BDL (DL:2.0) | |
| 4 | Hexavalent Chromium as Cr ⁶⁺ | EPA Method - 7196A:1992 (Rev-1) | mg/kg | BDL (DL:0.1) | |
| 5 | Lead as Pb | EPA 3050B-1996 (Rev-2)/EPA 7420-1986 | mg/kg | 159.97 | |
| 6 | Mercury as Hg | EPA 7471A-2007 (Rev-2) | mg/kg | BDL (DL:0.2) | |
| 7 | Particle Size Distribution: | | | Retained | Passed |
| | 2.8 mm | FAO Method | % | 25.36 | 74.64 |
| | 2.0 mm | | % | 7.10 | 67.54 |
| | 1.7 mm | | % | 5.36 | 62.18 |
| | 0.85 mm | | % | 8.10 | 54.08 |
| | 0.71 mm | | % | 6.30 | 47.78 |
| | 0.60 mm | | % | 4.11 | 43.67 |
| | 0.50 mm | | % | 5.28 | 38.39 |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd


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TEST REPORT

TEST REPORT NO: CTL/CH/N-3656/2016-17

DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------------------------|---|-----------------------|--------------|--------------|
| 8 | Poly Nuclear Aromatic Hydrocarbons(as PAH) | | | |
| | Naphthalene | CTL/SOP/SOIL/124-2014 | mg/kg | 0.018 |
| | Acenaphthylene | | mg/kg | BDL(DL:0.01) |
| | 2-Bromo-Naphthalene | | mg/kg | BDL(DL:0.02) |
| | Acenaphthene | | mg/kg | BDL(DL:0.02) |
| | Fluorene | | mg/kg | BDL(DL:0.02) |
| | Phenanthrene | | mg/kg | 0.136 |
| | Anthracene | | mg/kg | 0.147 |
| | Pyrene | | mg/kg | 0.036 |
| | Fluoranthene | | mg/kg | BDL(DL:0.02) |
| | Chrysene | | mg/kg | BDL(DL:0.02) |
| | Benz[a]anthracene | | mg/kg | BDL(DL:0.02) |
| | Benzo[a]pyrene | | mg/kg | BDL(DL:0.02) |
| | Benzo[b]fluoranthene | | mg/kg | BDL(DL:0.03) |
| | Benzo[ghi]perylene | | mg/kg | BDL(DL:0.03) |
| Dibenz[a,h]anthracene | mg/kg | | BDL(DL:0.03) | |
| Indeno[1,2,3-cd]pyrene | mg/kg | BDL(DL:0.04) | | |
| 9 | Poly Chlorinated Biphenyls(as PCB) | | | |
| | 2-Chlorobiphenyl | CTL/SOP/SOIL/132-2014 | mg/kg | BDL(DL:0.01) |
| | 2,3-dichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,5,4'-Trichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-tetrachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,4',6'-Pentachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5',6-Hexachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,4',6-Heptachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,5,6,6'-Octachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PCB | | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
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A. D. L.
Authorised Signatory

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TEST REPORT

TEST REPORT NO: CTL/CH/N-3656/2016-17

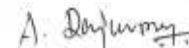
DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|-------|--|-----------------------|-----------------------|--------------|
| 10 | Poly Brominated Biphenyls(as PBB) | | | |
| | 2,3,3',4,4',5-Hexabromobiphenyl | CTL/SOP/SOIL/139-2014 | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 3,3',4,4'-Tetrabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 3,3',4,4',5-Pentabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Decabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PBB | | mg/kg | BDL(DL:0.01) |
| 11 | Poly Bromo Diethyl Ether (as PBDE) | | | |
| | 2,2',4,4',5,5'-Hexabromobiphenylether | CTL/SOP/SOIL/147-2014 | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5-Pentabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',6-Pentabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-Tetrabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | Sum of PBDE | | mg/kg | BDL(DL:0.01) |
| 12 | Polychlorinated Naphthalene | | CTL/SOP/SOIL/151-2014 | mg/kg |
| 13 | Tributyltin | CTL/SOP/SOIL/158-2014 | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd



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TEST REPORT

TEST REPORT NO: CTL/CH/N-3657/2016-17

DATE : 01.11.2016

SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD

COMPANY NAME **M/s. Cholamandalam MS Risk Services Limited,**
 ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
 Chennai - 600 001.

SAMPLE DESCRIPTION Soil (SO9)
 PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
 PLOT NO. 62
 SAMPLING LOCATION Arya Ship Breaking Co. Pvt. Ltd.
 GPS READING 21°23'12.90"N 72°10'17.91"E
 SAMPLE QUANTITY 1 Kg
 PACKING Received in Packed Condition
 SAMPLING DATE 16.08.2016
 SAMPLE RECEIVED ON 19.08.2016
 ANALYSIS STARTED ON 20.08.2016
 ANALYSIS COMPLETED ON 31.10.2016

| S.NO | PARAMETERS | METHOD | UNITS | RESULTS | |
|------|---|--|-------|-----------------|---------------|
| 1 | Moisture | IS 2720 (Part 2):1973 (R.2010) | % | 5.58 | |
| 2 | Total Organic Carbon | FAO Method (Pg. No.61) 2007 (walkley Black wet combustion method) | % | 0.21 | |
| 3 | Cadmium as Cd | EPA 3050B-1996 (Rev-2)/EPA 7130-1986 | mg/kg | BDL (DL:2.0) | |
| 4 | Hexavalent Chromium as Cr ⁶⁺ | EPA Method - 7196A:1992 (Rev-1) | mg/kg | BDL (DL:0.1) | |
| 5 | Lead as Pb | EPA 3050B-1996 (Rev-2)/EPA 7420-1986 | mg/kg | 35.82 | |
| 6 | Mercury as Hg | EPA 7471A-2007 (Rev-2) | mg/kg | BDL (DL:0.2) | |
| 7 | Particle Size Distribution: | | | Retained | Passed |
| | 2.8 mm | FAO Method | % | 24.63 | 75.37 |
| | 2.0 mm | | % | 5.10 | 70.27 |
| | 1.7 mm | | % | 4.32 | 65.95 |
| | 0.85 mm | | % | 12.55 | 53.4 |
| | 0.71 mm | | % | 7.10 | 46.30 |
| | 0.60 mm | | % | 3.20 | 43.10 |
| | 0.50 mm | | % | 4.51 | 38.59 |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
Verified by

A. Jayaram
Authorised Signatory

TEST REPORT

TEST REPORT NO: CTL/CH/N-3657/2016-17

DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------------------------|---|-----------------------|--------------|--------------|
| 8 | Poly Nuclear Aromatic Hydrocarbons(as PAH) | | | |
| | Naphthalene | CTL/SOP/SOIL/124-2014 | mg/kg | 0.014 |
| | Acenaphthylene | | mg/kg | BDL(DL:0.01) |
| | 2-Bromo-Naphthalene | | mg/kg | BDL(DL:0.02) |
| | Acenaphthene | | mg/kg | BDL(DL:0.02) |
| | Fluorene | | mg/kg | BDL(DL:0.02) |
| | Phenanthrene | | mg/kg | 0.247 |
| | Anthracene | | mg/kg | 0.278 |
| | Pyrene | | mg/kg | 0.365 |
| | Fluoranthene | | mg/kg | BDL(DL:0.02) |
| | Chrysene | | mg/kg | BDL(DL:0.02) |
| | Benz[a]anthracene | | mg/kg | BDL(DL:0.02) |
| | Benzo[a]pyrene | | mg/kg | BDL(DL:0.02) |
| | Benzo[b]fluoranthene | | mg/kg | BDL(DL:0.03) |
| | Benzo[ghi]perylene | | mg/kg | BDL(DL:0.03) |
| Dibenz[a,h]anthracene | mg/kg | | BDL(DL:0.03) | |
| Indeno[1,2,3-cd]pyrene | mg/kg | BDL(DL:0.04) | | |
| 9 | Poly Chlorinated Biphenyls(as PCB) | | | |
| | 2-Chlorobiphenyl | CTL/SOP/SOIL/132-2014 | mg/kg | BDL(DL:0.01) |
| | 2,3-dichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,5,4'-Trichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-tetrachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,4',6'-Pentachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5',6'-Hexachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,4',6'-Heptachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,5,6,6'-Octachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PCB | | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
Verified by

A. Jayaram
Authorised Signatory

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TEST REPORT

TEST REPORT NO: CTL/CH/N-3657/2016-17

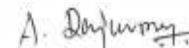
DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|-------|--|-----------------------|-------|--------------|
| 10 | Poly Brominated Biphenyls (as PBB) | CTL/SOP/SOIL/139-2014 | | |
| | 2,3,3',4,4',5-Hexabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 3,3',4,4'-Tetrabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 3,3',4,4',5-Pentabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Decabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PBB | | mg/kg | BDL(DL:0.01) |
| 11 | Poly Bromo Diethyl Ether (as PBDE) | CTL/SOP/SOIL/147-2014 | | |
| | 2,2',4,4',5,5'-Hexabromobiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5-Pentabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',6-Pentabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-Tetrabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | Sum of PBDE | | mg/kg | BDL(DL:0.01) |
| 12 | Polychlorinated Naphthalene | CTL/SOP/SOIL/151-2014 | mg/kg | BDL(DL:0.01) |
| 13 | Tributyltin | CTL/SOP/SOIL/158-2014 | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd



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7-2-1
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TEST REPORT

TEST REPORT NO: CTL/CH/N-3658/2016-17

DATE : 01.11.2016

SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD

COMPANY NAME **M/s. Cholamandalam MS Risk Services Limited,**
 ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
 Chennai - 600 001.

SAMPLE DESCRIPTION Soil (SO10)
 PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
 PLOT NO. 84F
 SAMPLING LOCATION Mahavir Metal Corporation
 GPS READING 21°22'37.58"N 72°10'00.21"E
 SAMPLE QUANTITY 1 Kg
 PACKING Received in Packed Condition
 SAMPLING DATE 16.08.2016
 SAMPLE RECEIVED ON 19.08.2016
 ANALYSIS STARTED ON 20.08.2016
 ANALYSIS COMPLETED ON 31.10.2016

| S.NO | PARAMETERS | METHOD | UNITS | RESULTS | |
|------|---|--|-------|-----------------|---------------|
| 1 | Moisture | IS 2720 (Part 2):1973 (R.2010) | % | 7.09 | |
| 2 | Total Organic Carbon | FAO Method (Pg. No.61) 2007 (walkley Black wet combustion method) | % | 0.37 | |
| 3 | Cadmium as Cd | EPA 3050B-1996 (Rev-2)/EPA 7130-1986 | mg/kg | BDL (DL:2.0) | |
| 4 | Hexavalent Chromium as Cr ⁶⁺ | EPA Method - 7196A:1992 (Rev-1) | mg/kg | BDL (DL:0.1) | |
| 5 | Lead as Pb | EPA 3050B-1996 (Rev-2)/EPA 7420-1986 | mg/kg | 17.21 | |
| 6 | Mercury as Hg | EPA 7471A-2007 (Rev-2) | mg/kg | BDL (DL:0.2) | |
| 7 | Particle Size Distribution: | | | Retained | Passed |
| | 2.8 mm | FAO Method | % | 32.60 | 67.4 |
| | 2.0 mm | | % | 4.12 | 63.28 |
| | 1.7 mm | | % | 3.10 | 60.18 |
| | 0.85 mm | | % | 10.54 | 49.64 |
| | 0.71 mm | | % | 2.51 | 47.13 |
| | 0.60 mm | | % | 2.14 | 44.99 |
| | 0.50 mm | | % | 5.80 | 39.19 |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
Verified by

A. Jayaram
Authorised Signatory

TEST REPORT

TEST REPORT NO: CTL/CH/N-3658/2016-17

DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------------------------|---|-----------------------|--------------|--------------|
| 8 | Poly Nuclear Aromatic Hydrocarbons(as PAH) | | | |
| | Naphthalene | CTL/SOP/SOIL/124-2014 | mg/kg | 0.114 |
| | Acenaphthylene | | mg/kg | 0.013 |
| | 2-Bromo-Naphthalene | | mg/kg | BDL(DL:0.02) |
| | Acenaphthene | | mg/kg | 0.032 |
| | Fluorene | | mg/kg | 0.152 |
| | Phenanthrene | | mg/kg | 0.141 |
| | Anthracene | | mg/kg | 0.018 |
| | Pyrene | | mg/kg | 0.021 |
| | Fluoranthene | | mg/kg | BDL(DL:0.02) |
| | Chrysene | | mg/kg | 0.214 |
| | Benz[a]anthracene | | mg/kg | BDL(DL:0.02) |
| | Benzo[a]pyrene | | mg/kg | BDL(DL:0.02) |
| | Benzo[b]fluoranthene | | mg/kg | BDL(DL:0.03) |
| | Benzo[ghi]perylene | | mg/kg | BDL(DL:0.03) |
| Dibenz[a,h]anthracene | mg/kg | | BDL(DL:0.03) | |
| Indeno[1,2,3-cd]pyrene | mg/kg | BDL(DL:0.04) | | |
| 9 | Poly Chlorinated Biphenyls(as PCB) | | | |
| | 2-Chlorobiphenyl | CTL/SOP/SOIL/132-2014 | mg/kg | BDL(DL:0.01) |
| | 2,3-dichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,5,4'-Trichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-tetrachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,4',6'-Pentachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5',6-Hexachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,4',6-Heptachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,5,6,6'-Octachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PCB | | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd


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TEST REPORT

TEST REPORT NO: CTL/CH/N-3658/2016-17

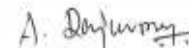
DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|-------|--|-----------------------|-----------------------|--------------|
| 10 | Poly Brominated Biphenyls(as PBB) | | | |
| | 2,3,3',4,4',5-Hexabromobiphenyl | CTL/SOP/SOIL/139-2014 | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 3,3',4,4'-Tetrabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 3,3',4,4',5-Pentabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Decabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PBB | | mg/kg | BDL(DL:0.01) |
| 11 | Poly Bromo Diethyl Ether (as PBDE) | | | |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | CTL/SOP/SOIL/147-2014 | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5-Pentabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',6-Pentabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-Tetrabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | Sum of PBDE | | mg/kg | BDL(DL:0.01) |
| 12 | Polychlorinated Naphthalene | | CTL/SOP/SOIL/151-2014 | mg/kg |
| 13 | Tributyltin | CTL/SOP/SOIL/158-2014 | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd



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7-2-1
Verified by

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TEST REPORT

TEST REPORT NO: CTL/CH/N-3659/2016-17

DATE : 01.11.2016

SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD

COMPANY NAME **M/s. Cholamandalam MS Risk Services Limited,**
 ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
 Chennai - 600 001.

SAMPLE DESCRIPTION Ground Water (GW1)
 PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
 SAMPLING LOCATION Vallabhabhai kanjibhai Itallia (South)
 GPS READING 21°24'41.61"N 72° 09'42.93"E
 SAMPLE QUANTITY 5 Litres x 2 Nos.
 PACKING Received in Plastic Container
 SAMPLING DATE 16.08.2016
 SAMPLE RECEIVED ON 19.08.2016
 ANALYSIS STARTED ON 20.08.2016
 ANALYSIS COMPLETED ON 31.10.2016

| S.NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------|---|--|-------|----------------|
| 1 | pH @ 25°C | IS 3025 (Part 11)-1983 (R.2006) | - | 8.0 |
| 2 | Salinity | 2520-B APHA 22 nd Ed. 2012 | ppt | 1.9 |
| 3 | Cadmium (as Cd) | IS 3025 (Part 41)-1992 (R.2009) | mg/l | BDL (DL:0.002) |
| 4 | Hexavalent Chromium as Cr ⁺⁶ | 3500-Cr-B APHA 22 nd Ed. 2012 | mg/l | BDL (DL:0.01) |
| 5 | Lead (as Pb) | IS 3025 (Part 47)-1994 (R.2009) | mg/l | 0.17 |
| 6 | Mercury (as Hg) | IS 3025 (Part 48)-1994 (R.2009) | mg/l | BDL (DL:0.001) |

For Chennai Testing Laboratory Pvt Ltd


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TEST REPORT

TEST REPORT NO: CTL/CH/N-3659/2016-17 DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------------------------|---|--|--------------|--------------|
| 7 | Poly Nuclear Aromatic Hydrocarbons(as PAH) | | | |
| | Naphthalene | APHA 22 nd Edition 6440 C CTL/SOP/WATER/102-2012 | µg/l | BDL(DL:0.01) |
| | Acenaphthylene | | µg/l | BDL(DL:0.01) |
| | 2-Bromo-Naphthalene | | µg/l | BDL(DL:0.02) |
| | Acenaphthene | | µg/l | BDL(DL:0.02) |
| | Fluorene | | µg/l | BDL(DL:0.02) |
| | Phenanthrene | | µg/l | BDL(DL:0.02) |
| | Anthracene | | µg/l | BDL(DL:0.02) |
| | Pyrene | | µg/l | BDL(DL:0.02) |
| | Fluoranthene | | µg/l | BDL(DL:0.02) |
| | Chrysene | | µg/l | BDL(DL:0.02) |
| | Benz[a]anthracene | | µg/l | BDL(DL:0.02) |
| | Benzo[a]pyrene | | µg/l | BDL(DL:0.02) |
| | Benzo[b]fluoranthene | | µg/l | BDL(DL:0.03) |
| | Benzo[ghi]perylene | | µg/l | BDL(DL:0.03) |
| Dibenz[a,h]anthracene | µg/l | | BDL(DL:0.03) | |
| Indeno[1,2,3-cd]pyrene | µg/l | BDL(DL:0.04) | | |
| 8 | Poly Chlorinated Biphenyls(as PCB) | | | |
| | 2-Chlorobiphenyl | Annex M of IS 13428-1998 | µg/l | BDL(DL:0.01) |
| | 2,3-dichlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,5,4'-Trichlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',4,4'-tetrachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',3,4',6'-Pentachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',4,4',5',6'-Hexachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',3,3',4,4',6'-Heptachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',3,3',4,5,6,6'-Octachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| Sum of PCB | µg/l | | BDL(DL:0.01) | |

For Chennai Testing Laboratory Pvt Ltd

N.D.L.
Verified by

A. Dhanraj
Authorised Signatory

TEST REPORT

TEST REPORT NO: CTL/CH/N-3659/2016-17 DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|-------|--|------------------------|-------|--------------|
| 9 | Poly Brominated Biphenyls(as PBB) | CTL/SOP/WATER/192-2016 | µg/l | BDL(DL:0.01) |
| | 2,3,3',4,4',5-Hexabromobiphenyl | | | |
| | 2,2',4,4',5,5'-Hexabromobiphenyl | | | |
| | 3,3',4,4'-Tetrabromobiphenyl | | | |
| | 3,3',4,4',5-Pentabromobiphenyl | | | |
| | Decabromobiphenyl | | | |
| | Sum of PBB | | | |
| 10 | Poly Bromo Diethyl Ether (as PBDE) | CTL/SOP/WATER/193-2016 | µg/l | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromobiphenylether | | | |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | | | |
| | 2,2',4,4',5-Pentabromodiphenylether | | | |
| | 2,2',4,4',6-Pentabromodiphenylether | | | |
| | 2,2',4,4'-Tetrabromodiphenylether | | | |
| | Sum of PBDE | | | |
| 11 | Polychlorinated Naphthalene | CTL/SOP/WATER/194-2016 | µg/l | BDL(DL:0.01) |
| 12 | Tributyltin | CTL/SOP/WATER/195-2016 | µg/l | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
Verified by

A. Jayaram
Authorised Signatory

Page 3 of 3

TEST REPORT

TEST REPORT NO: CTL/CH/N-3660/2016-17

DATE : 01.11.2016

SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD

COMPANY NAME **M/s. Cholamandalam MS Risk Services Limited,**
ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
Chennai - 600 001.

SAMPLE DESCRIPTION Ground Water (GW2)
PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
SAMPLING LOCATION Bapa Sitaram Madhuli manar (East)
GPS READING 21°24'43.89"N 72° 09'50.16"E
SAMPLE QUANTITY 5 Litres x 2 Nos.
PACKING Received in Plastic Container
SAMPLING DATE 16.08.2016
SAMPLE RECEIVED ON 19.08.2016
ANALYSIS STARTED ON 20.08.2016
ANALYSIS COMPLETED ON 31.10.2016

| S.NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------|---|--|-------|----------------|
| 1 | pH @ 25°C | IS 3025 (Part 11)-1983 (R.2006) | - | 7.6 |
| 2 | Salinity | 2520-B APHA 22 nd Ed. 2012 | ppt | 1.01 |
| 3 | Cadmium (as Cd) | IS 3025 (Part 41)-1992 (R.2009) | mg/l | BDL (DL:0.002) |
| 4 | Hexavalent Chromium as Cr ⁺⁶ | 3500-Cr-B APHA 22 nd Ed. 2012 | mg/l | BDL (DL:0.01) |
| 5 | Lead (as Pb) | IS 3025 (Part 47)-1994 (R.2009) | mg/l | BDL (DL:0.005) |
| 6 | Mercury (as Hg) | IS 3025 (Part 48)-1994 (R.2009) | mg/l | BDL (DL:0.001) |

For Chennai Testing Laboratory Pvt Ltd


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Page 1 of 3

TEST REPORT

TEST REPORT NO: CTL/CH/N-3660/2016-17 DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------------------------|---|--|--------------|--------------|
| 7 | Poly Nuclear Aromatic Hydrocarbons(as PAH) | | | |
| | Naphthalene | APHA 22 nd Edition 6440 C CTL/SOP/WATER/102-2012 | µg/l | BDL(DL:0.01) |
| | Acenaphthylene | | µg/l | BDL(DL:0.01) |
| | 2-Bromo-Naphthalene | | µg/l | BDL(DL:0.02) |
| | Acenaphthene | | µg/l | BDL(DL:0.02) |
| | Fluorene | | µg/l | BDL(DL:0.02) |
| | Phenanthrene | | µg/l | BDL(DL:0.02) |
| | Anthracene | | µg/l | BDL(DL:0.02) |
| | Pyrene | | µg/l | BDL(DL:0.02) |
| | Fluoranthene | | µg/l | BDL(DL:0.02) |
| | Chrysene | | µg/l | BDL(DL:0.02) |
| | Benz[a]anthracene | | µg/l | BDL(DL:0.02) |
| | Benzo[a]pyrene | | µg/l | BDL(DL:0.02) |
| | Benzo[b]fluoranthene | | µg/l | BDL(DL:0.03) |
| | Benzo[ghi]perylene | | µg/l | BDL(DL:0.03) |
| Dibenz[a,h]anthracene | µg/l | | BDL(DL:0.03) | |
| Indeno[1,2,3-cd]pyrene | µg/l | BDL(DL:0.04) | | |
| 8 | Poly Chlorinated Biphenyls(as PCB) | | | |
| | 2-Chlorobiphenyl | Annex M of IS 13428-1998 | µg/l | BDL(DL:0.01) |
| | 2,3-dichlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,5,4'-Trichlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',4,4'-tetrachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',3,4',6'-Pentachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',4,4',5',6'-Hexachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',3,3',4,4',6'-Heptachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',3,3',4,5,6,6'-Octachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | Sum of PCB | | µg/l | BDL(DL:0.01) |

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
Verified by

A. D. Jeyaraj
Authorised Signatory

TEST REPORT

TEST REPORT NO: CTL/CH/N-3660/2016-17 DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|-------|--|------------------------|------------------------|--------------|
| 9 | Poly Brominated Biphenyls(as PBB) | | | |
| | 2,3,3',4,4',5-Hexabromobiphenyl | CTL/SOP/WATER/192-2016 | µg/l | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromobiphenyl | | µg/l | BDL(DL:0.01) |
| | 3,3',4,4'-Tetrabromobiphenyl | | µg/l | BDL(DL:0.01) |
| | 3,3',4,4',5-Pentabromobiphenyl | | µg/l | BDL(DL:0.01) |
| | Decabromobiphenyl | | µg/l | BDL(DL:0.01) |
| | Sum of PBB | | µg/l | BDL(DL:0.01) |
| 10 | Poly Bromo Diethyl Ether (as PBDE) | | | |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | CTL/SOP/WATER/193-2016 | µg/l | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | | µg/l | BDL(DL:0.01) |
| | 2,2',4,4',5-Pentabromodiphenylether | | µg/l | BDL(DL:0.01) |
| | 2,2',4,4',6-Pentabromodiphenylether | | µg/l | BDL(DL:0.01) |
| | 2,2',4,4'-Tetrabromodiphenylether | | µg/l | BDL(DL:0.01) |
| | Sum of PBDE | | µg/l | BDL(DL:0.01) |
| 11 | Polychlorinated Naphthalene | | CTL/SOP/WATER/194-2016 | µg/l |
| 12 | Tributyltin | CTL/SOP/WATER/195-2016 | µg/l | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd

N.D.L.
Verified by

A. Jayaram
Authorised Signatory

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TEST REPORT

TEST REPORT NO: CTL/CH/N-3661/2016-17

DATE : 01.11.2016

SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD

COMPANY NAME **M/s. Cholamandalam MS Risk Services Limited,**
ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
Chennai - 600 001.

SAMPLE DESCRIPTION Ground Water (GW3)
PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
SAMPLING LOCATION Jaivraj Bhai Bathani (West)
GPS READING 21°24'55.24"N 72° 09'30.41"E
SAMPLE QUANTITY 5 Litres x 2 Nos.
PACKING Received in Plastic Container
SAMPLING DATE 16.08.2016
SAMPLE RECEIVED ON 19.08.2016
ANALYSIS STARTED ON 20.08.2016
ANALYSIS COMPLETED ON 31.10.2016

| S.NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------|---|--|-------|----------------|
| 1 | pH @ 25°C | IS 3025 (Part 11)-1983 (R.2006) | - | 7.6 |
| 2 | Salinity | 2520-B APHA 22 nd Ed. 2012 | ppt | 0.78 |
| 3 | Cadmium (as Cd) | IS 3025 (Part 41)-1992 (R.2009) | mg/l | BDL (DL:0.002) |
| 4 | Hexavalent Chromium as Cr ⁺⁶ | 3500-Cr-B APHA 22 nd Ed. 2012 | mg/l | BDL (DL:0.01) |
| 5 | Lead (as Pb) | IS 3025 (Part 47)-1994 (R.2009) | mg/l | 0.15 |
| 6 | Mercury (as Hg) | IS 3025 (Part 48)-1994 (R.2009) | mg/l | BDL (DL:0.001) |

For Chennai Testing Laboratory Pvt Ltd


Verified by


Authorised Signatory

Page 1 of 3

TEST REPORT

TEST REPORT NO: CTL/CH/N-3661/2016-17 DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------------------------|---|--|--------------|--------------|
| 7 | Poly Nuclear Aromatic Hydrocarbons(as PAH) | | | |
| | Naphthalene | APHA 22 nd Edition 6440 C CTL/SOP/WATER/102-2012 | µg/l | BDL(DL:0.01) |
| | Acenaphthylene | | µg/l | BDL(DL:0.01) |
| | 2-Bromo-Naphthalene | | µg/l | BDL(DL:0.02) |
| | Acenaphthene | | µg/l | BDL(DL:0.02) |
| | Fluorene | | µg/l | BDL(DL:0.02) |
| | Phenanthrene | | µg/l | BDL(DL:0.02) |
| | Anthracene | | µg/l | BDL(DL:0.02) |
| | Pyrene | | µg/l | BDL(DL:0.02) |
| | Fluoranthene | | µg/l | BDL(DL:0.02) |
| | Chrysene | | µg/l | BDL(DL:0.02) |
| | Benz[a]anthracene | | µg/l | BDL(DL:0.02) |
| | Benzo[a]pyrene | | µg/l | BDL(DL:0.02) |
| | Benzo[b]fluoranthene | | µg/l | BDL(DL:0.03) |
| | Benzo[ghi]perylene | | µg/l | BDL(DL:0.03) |
| Dibenz[a,h]anthracene | µg/l | | BDL(DL:0.03) | |
| Indeno[1,2,3-cd]pyrene | µg/l | BDL(DL:0.04) | | |
| 8 | Poly Chlorinated Biphenyls(as PCB) | | | |
| | 2-Chlorobiphenyl | Annex M of IS 13428-1998 | µg/l | BDL(DL:0.01) |
| | 2,3-dichlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,5,4'-Trichlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',4,4'-tetrachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',3,4',6'-Pentachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',4,4',5',6'-Hexachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',3,3',4,4',6'-Heptachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',3,3',4,5,6,6'-Octachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | Sum of PCB | | µg/l | BDL(DL:0.01) |

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
Verified by

A. D. Jeyaraj
Authorised Signatory

TEST REPORT

TEST REPORT NO: CTL/CH/N-3661/2016-17 DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|-------|--|------------------------|-------|--------------|
| 9 | Poly Brominated Biphenyls(as PBB) | CTL/SOP/WATER/192-2016 | µg/l | BDL(DL:0.01) |
| | 2,3,3',4,4',5-Hexabromobiphenyl | | | |
| | 2,2',4,4',5,5'-Hexabromobiphenyl | | | |
| | 3,3',4,4'-Tetrabromobiphenyl | | | |
| | 3,3',4,4',5-Pentabromobiphenyl | | | |
| | Decabromobiphenyl | | | |
| | Sum of PBB | | | |
| 10 | Poly Bromo Diethyl Ether (as PBDE) | CTL/SOP/WATER/193-2016 | µg/l | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromobiphenylether | | | |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | | | |
| | 2,2',4,4',5-Pentabromodiphenylether | | | |
| | 2,2',4,4',6-Pentabromodiphenylether | | | |
| | 2,2',4,4'-Tetrabromodiphenylether | | | |
| | Sum of PBDE | | | |
| 11 | Polychlorinated Naphthalene | CTL/SOP/WATER/194-2016 | µg/l | BDL(DL:0.01) |
| 12 | Tributyltin | CTL/SOP/WATER/195-2016 | µg/l | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
Verified by

A. Jayaram
Authorised Signatory

Page 3 of 3



CIN : U74999TN2008PTC067568

TEST REPORT

TEST REPORT NO: CTL/CH/N-3662/2016-17

DATE : 01.11.2016

SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD

COMPANY NAME **M/s. Cholamandalam MS Risk Services Limited,**
 ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
 Chennai - 600 001.

SAMPLE DESCRIPTION Ground Water (GW4)
 PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
 SAMPLING LOCATION Kalubhai Lavji Bhai Itallia (North)
 GPS READING 21°24'49.38"N 72° 09'50.76"E
 SAMPLE QUANTITY 5 Litres x 2 Nos.
 PACKING Received in Plastic Container
 SAMPLING DATE 16.08.2016
 SAMPLE RECEIVED ON 19.08.2016
 ANALYSIS STARTED ON 20.08.2016
 ANALYSIS COMPLETED ON 31.10.2016

| S.NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------|---|--|-------|----------------|
| 1 | pH @ 25°C | IS 3025 (Part 11)-1983 (R.2006) | - | 7.6 |
| 2 | Salinity | 2520-B APHA 22 nd Ed. 2012 | ppt | 0.86 |
| 3 | Cadmium (as Cd) | IS 3025 (Part 41)-1992 (R.2009) | mg/l | BDL (DL:0.002) |
| 4 | Hexavalent Chromium as Cr ⁺⁶ | 3500-Cr-B APHA 22 nd Ed. 2012 | mg/l | BDL (DL:0.01) |
| 5 | Lead (as Pb) | IS 3025 (Part 47)-1994 (R.2009) | mg/l | 0.12 |
| 6 | Mercury (as Hg) | IS 3025 (Part 48)-1994 (R.2009) | mg/l | BDL (DL:0.001) |

For Chennai Testing Laboratory Pvt Ltd

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Page 1 of 3

TEST REPORT

TEST REPORT NO: CTL/CH/N-3662/2016-17 DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------------------------|---|--|--------------|--------------|
| 7 | Poly Nuclear Aromatic Hydrocarbons(as PAH) | | | |
| | Naphthalene | APHA 22 nd Edition 6440 C CTL/SOP/WATER/102-2012 | µg/l | BDL(DL:0.01) |
| | Acenaphthylene | | µg/l | BDL(DL:0.01) |
| | 2-Bromo-Naphthalene | | µg/l | BDL(DL:0.02) |
| | Acenaphthene | | µg/l | BDL(DL:0.02) |
| | Fluorene | | µg/l | BDL(DL:0.02) |
| | Phenanthrene | | µg/l | BDL(DL:0.02) |
| | Anthracene | | µg/l | BDL(DL:0.02) |
| | Pyrene | | µg/l | BDL(DL:0.02) |
| | Fluoranthene | | µg/l | BDL(DL:0.02) |
| | Chrysene | | µg/l | BDL(DL:0.02) |
| | Benz[a]anthracene | | µg/l | BDL(DL:0.02) |
| | Benzo[a]pyrene | | µg/l | BDL(DL:0.02) |
| | Benzo[b]fluoranthene | | µg/l | BDL(DL:0.03) |
| | Benzo[ghi]perylene | | µg/l | BDL(DL:0.03) |
| Dibenz[a,h]anthracene | µg/l | | BDL(DL:0.03) | |
| Indeno[1,2,3-cd]pyrene | µg/l | BDL(DL:0.04) | | |
| 8 | Poly Chlorinated Biphenyls(as PCB) | | | |
| | 2-Chlorobiphenyl | Annex M of IS 13428-1998 | µg/l | BDL(DL:0.01) |
| | 2,3-dichlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,5,4'-Trichlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',4,4'-tetrachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',3,4',6'-Pentachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',4,4',5',6'-Hexachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',3,3',4,4',6'-Heptachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',3,3',4,5,6,6'-Octachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | Sum of PCB | | µg/l | BDL(DL:0.01) |

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
Verified by

A. D. Jeyaraj
Authorised Signatory

TEST REPORT

TEST REPORT NO: CTL/CH/N-3662/2016-17 DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|-------|--|------------------------|-------|--------------|
| 9 | Poly Brominated Biphenyls(as PBB) | CTL/SOP/WATER/192-2016 | µg/l | BDL(DL:0.01) |
| | 2,3,3',4,4',5-Hexabromobiphenyl | | | |
| | 2,2',4,4',5,5'-Hexabromobiphenyl | | | |
| | 3,3',4,4'-Tetrabromobiphenyl | | | |
| | 3,3',4,4',5-Pentabromobiphenyl | | | |
| | Decabromobiphenyl | | | |
| | Sum of PBB | | | |
| 10 | Poly Bromo Diethyl Ether (as PBDE) | CTL/SOP/WATER/193-2016 | µg/l | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromobiphenylether | | | |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | | | |
| | 2,2',4,4',5-Pentabromodiphenylether | | | |
| | 2,2',4,4',6-Pentabromodiphenylether | | | |
| | 2,2',4,4'-Tetrabromodiphenylether | | | |
| | Sum of PBDE | | | |
| 11 | Polychlorinated Naphthalene | CTL/SOP/WATER/194-2016 | µg/l | BDL(DL:0.01) |
| 12 | Tributyltin | CTL/SOP/WATER/195-2016 | µg/l | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
Verified by

A. Jayaram
Authorised Signatory

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TEST REPORT

TEST REPORT NO: CTL/CH/N-3663/2016-17

DATE : 01.11.2016

SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD

COMPANY NAME **M/s. Cholamandalam MS Risk Services Limited,**
 ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
 Chennai - 600 001.

SAMPLE DESCRIPTION Ground Water (GW5)
 PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
 SAMPLING LOCATION Leachate from TSDF landfill (Cell 4.1)
 GPS READING 21°24'51.87"N 72° 09'38.08"E
 SAMPLE QUANTITY 5 Litres x 2 Nos.
 PACKING Received in Plastic Container
 SAMPLING DATE 16.08.2016
 SAMPLE RECEIVED ON 19.08.2016
 ANALYSIS STARTED ON 20.08.2016
 ANALYSIS COMPLETED ON 31.10.2016

| S.NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------|---|--|-------|----------------|
| 1 | pH @ 25°C | IS 3025 (Part 11)-1983 (R.2006) | - | 7.5 |
| 2 | Salinity | 2520-B APHA 22 nd Ed. 2012 | ppt | 8.56 |
| 3 | Cadmium (as Cd) | IS 3025 (Part 41)-1992 (R.2009) | mg/l | BDL (DL:0.002) |
| 4 | Hexavalent Chromium as Cr ⁺⁶ | 3500-Cr-B APHA 22 nd Ed. 2012 | mg/l | BDL (DL:0.01) |
| 5 | Lead (as Pb) | IS 3025 (Part 47)-1994 (R.2009) | mg/l | 0.99 |
| 6 | Mercury (as Hg) | IS 3025 (Part 48)-1994 (R.2009) | mg/l | 0.01 |

For Chennai Testing Laboratory Pvt Ltd


Verified by


Authorised Signatory

Page 1 of 3

TEST REPORT

TEST REPORT NO: CTL/CH/N-3663/2016-17 DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------------------------|---|--|--------------|--------------|
| 7 | Poly Nuclear Aromatic Hydrocarbons(as PAH) | | | |
| | Naphthalene | APHA 22 nd Edition 6440 C CTL/SOP/WATER/102-2012 | µg/l | BDL(DL:0.01) |
| | Acenaphthylene | | µg/l | BDL(DL:0.01) |
| | 2-Bromo-Naphthalene | | µg/l | BDL(DL:0.02) |
| | Acenaphthene | | µg/l | BDL(DL:0.02) |
| | Fluorene | | µg/l | BDL(DL:0.02) |
| | Phenanthrene | | µg/l | BDL(DL:0.02) |
| | Anthracene | | µg/l | BDL(DL:0.02) |
| | Pyrene | | µg/l | BDL(DL:0.02) |
| | Fluoranthene | | µg/l | BDL(DL:0.02) |
| | Chrysene | | µg/l | BDL(DL:0.02) |
| | Benz[a]anthracene | | µg/l | BDL(DL:0.02) |
| | Benzo[a]pyrene | | µg/l | BDL(DL:0.02) |
| | Benzo[b]fluoranthene | | µg/l | BDL(DL:0.03) |
| | Benzo[ghi]perylene | | µg/l | BDL(DL:0.03) |
| Dibenz[a,h]anthracene | µg/l | | BDL(DL:0.03) | |
| Indeno[1,2,3-cd]pyrene | µg/l | BDL(DL:0.04) | | |
| 8 | Poly Chlorinated Biphenyls(as PCB) | | | |
| | 2-Chlorobiphenyl | Annex M of IS 13428-1998 | µg/l | BDL(DL:0.01) |
| | 2,3-dichlorobiphenyl | | µg/l | 22.14 |
| | 2,5,4'-Trichlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',4,4'-tetrachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',3,4',6'-Pentachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',4,4',5',6'-Hexachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',3,3',4,4',6'-Heptachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',3,3',4,5,6,6'-Octachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | Sum of PCB | | µg/l | 22.14 |

For Chennai Testing Laboratory Pvt Ltd

N.D.L.
Verified by

A. Dhanraj
Authorised Signatory

TEST REPORT

TEST REPORT NO: CTL/CH/N-3663/2016-17 DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|-------|--|------------------------|------------------------|--------------|
| 9 | Poly Brominated Biphenyls(as PBB) | | | |
| | 2,3,3',4,4',5-Hexabromobiphenyl | CTL/SOP/WATER/192-2016 | µg/l | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromobiphenyl | | µg/l | 3.425 |
| | 3,3',4,4'-Tetrabromobiphenyl | | µg/l | BDL(DL:0.01) |
| | 3,3',4,4',5-Pentabromobiphenyl | | µg/l | BDL(DL:0.01) |
| | Decabromobiphenyl | | µg/l | BDL(DL:0.01) |
| | Sum of PBB | | µg/l | 3.425 |
| 10 | Poly Bromo Diethyl Ether (as PBDE) | | | |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | CTL/SOP/WATER/193-2016 | µg/l | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | | µg/l | BDL(DL:0.01) |
| | 2,2',4,4',5-Pentabromodiphenylether | | µg/l | BDL(DL:0.01) |
| | 2,2',4,4',6-Pentabromodiphenylether | | µg/l | BDL(DL:0.01) |
| | 2,2',4,4'-Tetrabromodiphenylether | | µg/l | BDL(DL:0.01) |
| | Sum of PBDE | | µg/l | BDL(DL:0.01) |
| 11 | Polychlorinated Naphthalene | | CTL/SOP/WATER/194-2016 | µg/l |
| 12 | Tributyltin | CTL/SOP/WATER/195-2016 | µg/l | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
Verified by

A. Jayaram
Authorised Signatory

Page 3 of 3



CIN : U74999TN2008PTC067568

TEST REPORT

TEST REPORT NO: CTL/CH/N-3664/2016-17

DATE : 01.11.2016

SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD

COMPANY NAME **M/s. Cholamandalam MS Risk Services Limited,**
 ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
 Chennai - 600 001.

SAMPLE DESCRIPTION Ground Water (GW6)
 PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
 SAMPLING LOCATION Well inside Leela Ship Recycler Ltd (Plot no. 2)
 GPS READING 21°24'04.51"N 72°11'05.99"E
 SAMPLE QUANTITY 5 Litres x 2 Nos.
 PACKING Received in Plastic Container
 SAMPLING DATE 16.08.2016
 SAMPLE RECEIVED ON 19.08.2016
 ANALYSIS STARTED ON 20.08.2016
 ANALYSIS COMPLETED ON 31.10.2016

| S.NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------|---|--|-------|----------------|
| 1 | pH @ 25°C | IS 3025 (Part 11)-1983 (R.2006) | - | 8.0 |
| 2 | Salinity | 2520-B APHA 22 nd Ed. 2012 | ppt | 2.72 |
| 3 | Cadmium (as Cd) | IS 3025 (Part 41)-1992 (R.2009) | mg/l | BDL (DL:0.002) |
| 4 | Hexavalent Chromium as Cr ⁺⁶ | 3500-Cr-B APHA 22 nd Ed. 2012 | mg/l | BDL (DL:0.01) |
| 5 | Lead (as Pb) | IS 3025 (Part 47)-1994 (R.2009) | mg/l | 0.21 |
| 6 | Mercury (as Hg) | IS 3025 (Part 48)-1994 (R.2009) | mg/l | BDL (DL:0.001) |

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
Verified by

A. D. J. M.
Authorised Signatory

Page 1 of 3

TEST REPORT

TEST REPORT NO: CTL/CH/N-3664/2016-17 DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------------------------|---|--|--------------|--------------|
| 7 | Poly Nuclear Aromatic Hydrocarbons(as PAH) | | | |
| | Naphthalene | APHA 22 nd Edition 6440 C CTL/SOP/WATER/102-2012 | µg/l | BDL(DL:0.01) |
| | Acenaphthylene | | µg/l | BDL(DL:0.01) |
| | 2-Bromo-Naphthalene | | µg/l | BDL(DL:0.02) |
| | Acenaphthene | | µg/l | BDL(DL:0.02) |
| | Fluorene | | µg/l | BDL(DL:0.02) |
| | Phenanthrene | | µg/l | BDL(DL:0.02) |
| | Anthracene | | µg/l | BDL(DL:0.02) |
| | Pyrene | | µg/l | BDL(DL:0.02) |
| | Fluoranthene | | µg/l | BDL(DL:0.02) |
| | Chrysene | | µg/l | BDL(DL:0.02) |
| | Benz[a]anthracene | | µg/l | BDL(DL:0.02) |
| | Benzo[a]pyrene | | µg/l | BDL(DL:0.02) |
| | Benzo[b]fluoranthene | | µg/l | BDL(DL:0.03) |
| | Benzo[ghi]perylene | | µg/l | BDL(DL:0.03) |
| Dibenz[a,h]anthracene | µg/l | | BDL(DL:0.03) | |
| Indeno[1,2,3-cd]pyrene | µg/l | BDL(DL:0.04) | | |
| 8 | Poly Chlorinated Biphenyls(as PCB) | | | |
| | 2-Chlorobiphenyl | Annex M of IS 13428-1998 | µg/l | BDL(DL:0.01) |
| | 2,3-dichlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,5,4'-Trichlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',4,4'-tetrachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',3,4',6'-Pentachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',4,4',5',6'-Hexachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',3,3',4,4',6'-Heptachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',3,3',4,5,6,6'-Octachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| Sum of PCB | µg/l | | BDL(DL:0.01) | |

For Chennai Testing Laboratory Pvt Ltd

N.D.L.
Verified by

A. Dhanraj
Authorised Signatory

TEST REPORT

TEST REPORT NO: CTL/CH/N-3664/2016-17 DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|-------|--|------------------------|-------|--------------|
| 9 | Poly Brominated Biphenyls(as PBB) | CTL/SOP/WATER/192-2016 | µg/l | BDL(DL:0.01) |
| | 2,3,3',4,4',5-Hexabromobiphenyl | | | |
| | 2,2',4,4',5,5'-Hexabromobiphenyl | | | |
| | 3,3',4,4'-Tetrabromobiphenyl | | | |
| | 3,3',4,4',5-Pentabromobiphenyl | | | |
| | Decabromobiphenyl | | | |
| | Sum of PBB | | | |
| 10 | Poly Bromo Diethyl Ether (as PBDE) | CTL/SOP/WATER/193-2016 | µg/l | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromobiphenylether | | | |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | | | |
| | 2,2',4,4',5-Pentabromodiphenylether | | | |
| | 2,2',4,4',6-Pentabromodiphenylether | | | |
| | 2,2',4,4'-Tetrabromodiphenylether | | | |
| | Sum of PBDE | | | |
| 11 | Polychlorinated Naphthalene | CTL/SOP/WATER/194-2016 | µg/l | BDL(DL:0.01) |
| 12 | Tributyltin | CTL/SOP/WATER/195-2016 | µg/l | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
Verified by

A. Jayaram
Authorised Signatory

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TEST REPORT

TEST REPORT NO: CTL/CH/N-3665/2016-17

DATE : 01.11.2016

SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD

COMPANY NAME **M/s. Cholamandalam MS Risk Services Limited,**
 ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
 Chennai - 600 001.

SAMPLE DESCRIPTION Ground Water (GW7)
 PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
 SAMPLING LOCATION Well inside M.V. Ship Trade Pvt. Ltd. (Plot no. 136)
 GPS READING 21°25'40.53"N 72°12'51.21"E
 SAMPLE QUANTITY 5 Litres x 2 Nos.
 PACKING Received in Plastic Container
 SAMPLING DATE 16.08.2016
 SAMPLE RECEIVED ON 19.08.2016
 ANALYSIS STARTED ON 20.08.2016
 ANALYSIS COMPLETED ON 31.10.2016

| S.NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------|---|--|-------|----------------|
| 1 | pH @ 25°C | IS 3025 (Part 11)-1983 (R.2006) | - | 7.8 |
| 2 | Salinity | 2520-B APHA 22 nd Ed. 2012 | ppt | 1.77 |
| 3 | Cadmium (as Cd) | IS 3025 (Part 41)-1992 (R.2009) | mg/l | BDL (DL:0.002) |
| 4 | Hexavalent Chromium as Cr ⁺⁶ | 3500-Cr-B APHA 22 nd Ed. 2012 | mg/l | BDL (DL:0.01) |
| 5 | Lead (as Pb) | IS 3025 (Part 47)-1994 (R.2009) | mg/l | 0.19 |
| 6 | Mercury (as Hg) | IS 3025 (Part 48)-1994 (R.2009) | mg/l | BDL (DL:0.001) |

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Page 1 of 3

TEST REPORT

TEST REPORT NO: CTL/CH/N-3665/2016-17 DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------------------------|---|--|--------------|--------------|
| 7 | Poly Nuclear Aromatic Hydrocarbons(as PAH) | | | |
| | Naphthalene | APHA 22 nd Edition 6440 C CTL/SOP/WATER/102-2012 | µg/l | BDL(DL:0.01) |
| | Acenaphthylene | | µg/l | BDL(DL:0.01) |
| | 2-Bromo-Naphthalene | | µg/l | BDL(DL:0.02) |
| | Acenaphthene | | µg/l | BDL(DL:0.02) |
| | Fluorene | | µg/l | BDL(DL:0.02) |
| | Phenanthrene | | µg/l | BDL(DL:0.02) |
| | Anthracene | | µg/l | BDL(DL:0.02) |
| | Pyrene | | µg/l | BDL(DL:0.02) |
| | Fluoranthene | | µg/l | BDL(DL:0.02) |
| | Chrysene | | µg/l | BDL(DL:0.02) |
| | Benz[a]anthracene | | µg/l | BDL(DL:0.02) |
| | Benzo[a]pyrene | | µg/l | BDL(DL:0.02) |
| | Benzo[b]fluoranthene | | µg/l | BDL(DL:0.03) |
| | Benzo[ghi]perylene | | µg/l | BDL(DL:0.03) |
| Dibenz[a,h]anthracene | µg/l | | BDL(DL:0.03) | |
| Indeno[1,2,3-cd]pyrene | µg/l | BDL(DL:0.04) | | |
| 8 | Poly Chlorinated Biphenyls(as PCB) | | | |
| | 2-Chlorobiphenyl | Annex M of IS 13428-1998 | µg/l | BDL(DL:0.01) |
| | 2,3-dichlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,5,4'-Trichlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',4,4'-tetrachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',3,4',6'-Pentachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',4,4',5',6'-Hexachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',3,3',4,4',6'-Heptachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | 2,2',3,3',4,5,6,6'-Octachlorobiphenyl | | µg/l | BDL(DL:0.01) |
| | Sum of PCB | | µg/l | BDL(DL:0.01) |

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
Verified by

A. D. Jeyaraj
Authorised Signatory

TEST REPORT

TEST REPORT NO: CTL/CH/N-3665/2016-17 DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|-------|--|------------------------|------------------------|--------------|
| 9 | Poly Brominated Biphenyls(as PBB) | | | |
| | 2,3,3',4,4',5-Hexabromobiphenyl | CTL/SOP/WATER/192-2016 | µg/l | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromobiphenyl | | µg/l | BDL(DL:0.01) |
| | 3,3',4,4'-Tetrabromobiphenyl | | µg/l | BDL(DL:0.01) |
| | 3,3',4,4',5-Pentabromobiphenyl | | µg/l | BDL(DL:0.01) |
| | Decabromobiphenyl | | µg/l | BDL(DL:0.01) |
| | Sum of PBB | | µg/l | BDL(DL:0.01) |
| 10 | Poly Bromo Diethyl Ether (as PBDE) | | | |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | CTL/SOP/WATER/193-2016 | µg/l | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | | µg/l | BDL(DL:0.01) |
| | 2,2',4,4',5-Pentabromodiphenylether | | µg/l | BDL(DL:0.01) |
| | 2,2',4,4',6-Pentabromodiphenylether | | µg/l | BDL(DL:0.01) |
| | 2,2',4,4'-Tetrabromodiphenylether | | µg/l | BDL(DL:0.01) |
| | Sum of PBDE | | µg/l | BDL(DL:0.01) |
| 11 | Polychlorinated Naphthalene | | CTL/SOP/WATER/194-2016 | µg/l |
| 12 | Tributyltin | CTL/SOP/WATER/195-2016 | µg/l | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

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N. D. L.
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A. Jayaram
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TEST REPORT

TEST REPORT NO: CTL/CH/N-3666/2016-17

DATE : 09.11.2016

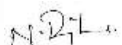
SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD

COMPANY NAME **M/s. Cholamandalam MS Risk Services Limited,**
 ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
 Chennai - 600 001.

SAMPLE DESCRIPTION Soil
 PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
 SAMPLING LOCATION Vallabhbhai Kanjibhai Italia (South)
 GPS READING 21°24'41.61"N 72° 09'42.93"E
 SAMPLE QUANTITY 1 Kg
 PACKING Received in Packed Condition
 SAMPLING DATE 16.08.2016
 SAMPLE RECEIVED ON 19.08.2016
 ANALYSIS STARTED ON 20.08.2016
 ANALYSIS COMPLETED ON 09.11.2016

| S.NO | PARAMETERS | METHOD | UNITS | RESULTS | |
|------|------------------------------------|--|-------|-----------------|---------------|
| 1 | Moisture | IS 2720 (Part 2):1973 (R.2010) | % | 20.41 | |
| 2 | Total Organic Carbon | FAO Method (Pg. No.61) 2007 (walkley Black wet combustion method) | % | 0.35 | |
| 3 | Particle Size Distribution: | | | Retained | Passed |
| | 2.8 mm | FAO Method | % | 26.50 | 73.5 |
| | 2.0 mm | | % | 4.58 | 68.92 |
| | 1.7 mm | | % | 1.80 | 67.12 |
| | 0.85 mm | | % | 13.20 | 53.92 |
| | 0.71 mm | | % | 1.50 | 52.42 |
| | 0.60 mm | | % | 3.68 | 48.74 |
| | 0.50 mm | | % | 7.21 | 41.53 |

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TEST REPORT

TEST REPORT NO: CTL/CH/N-3666/2016-17 DATE : 09.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|----------|---------------------|---------------|-------|---------------|
| 4 | Dioxins | USEPA 1613 | | |
| | 2,3,7,8-TCDF | | ng/kg | BDL (DL:0.03) |
| | 1,2,3,7,8-PeCDF | | ng/kg | BDL (DL:0.03) |
| | 2,3,4,7,8-PeCDF | | ng/kg | BDL (DL:0.03) |
| | 1,2,3,4,7,8-HxCDF | | ng/kg | BDL (DL:0.03) |
| | 1,2,3,6,7,8-HxCDF | | ng/kg | BDL (DL:0.03) |
| | 2,3,4,6,7,8-HxCDF | | ng/kg | BDL (DL:0.03) |
| | 1,2,3,7,8,9-HxCDF | | ng/kg | BDL (DL:0.03) |
| | 1,2,3,4,6,7,8-HpCDF | | ng/kg | BDL (DL:0.03) |
| | 1,2,3,4,7,8,9-HpCDF | | ng/kg | BDL (DL:0.03) |
| | OCDF | | ng/kg | BDL (DL:0.03) |
| | 2,3,7,8-TCDD | | ng/kg | BDL (DL:0.06) |
| | 1,2,3,7,8-PeCDD | | ng/kg | BDL (DL:0.06) |
| | 1,2,3,4,7,8-HxCDD | | ng/kg | BDL (DL:0.06) |
| | 1,2,3,6,7,8-HxCDD | | ng/kg | BDL (DL:0.06) |
| | 1,2,3,7,8,9-HxCDD | | ng/kg | BDL (DL:0.06) |
| | 1,2,3,4,6,7,8-HpCDD | | ng/kg | BDL (DL:0.06) |
| | OCDD | | ng/kg | BDL (DL:0.06) |
| | Total Dioxins | | ng/kg | BDL (DL:0.06) |
| | Total Furans | | ng/kg | BDL (DL:0.03) |
| TotalTEQ | ng/kg | BDL (DL:0.06) | | |

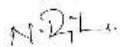
BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd



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TEST REPORT

TEST REPORT NO: CTL/CH/N-3667/2016-17

DATE : 09.11.2016

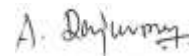
SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD

COMPANY NAME **M/s. Cholamandalam MS Risk Services Limited,**
 ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
 Chennai - 600 001.

SAMPLE DESCRIPTION Soil
 PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
 SAMPLING LOCATION Bapa Sitaram Madani Manor (East)
 GPS READING 21°24'43.89"N 72° 09'50.16"E
 SAMPLE QUANTITY 1 Kg
 PACKING Received in Packed Condition
 SAMPLING DATE 16.08.2016
 SAMPLE RECEIVED ON 19.08.2016
 ANALYSIS STARTED ON 20.08.2016
 ANALYSIS COMPLETED ON 09.11.2016

| S.NO | PARAMETERS | METHOD | UNITS | RESULTS | |
|------|------------------------------------|--|-------|-----------------|---------------|
| 1 | Moisture | IS 2720 (Part 2):1973 (R.2010) | % | 5.87 | |
| 2 | Total Organic Carbon | FAO Method (Pg. No.61) 2007 (walkley Black wet combustion method) | % | 0.47 | |
| 3 | Particle Size Distribution: | | | Retained | Passed |
| | 2.8 mm | FAO Method | % | 28.41 | 71.59 |
| | 2.0 mm | | % | 3.25 | 68.34 |
| | 1.7 mm | | % | 2.96 | 65.38 |
| | 0.85 mm | | % | 10.25 | 55.13 |
| | 0.71 mm | | % | 2.66 | 52.47 |
| | 0.60 mm | | % | 4.20 | 48.27 |
| | 0.50 mm | | % | 6.54 | 41.73 |

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TEST REPORT

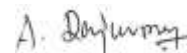
TEST REPORT NO: CTL/CH/N-3667/2016-17 DATE : 09.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|----------|---------------------|---------------|-------|---------------|
| 4 | Dioxins | USEPA 1613 | | |
| | 2,3,7,8-TCDF | | ng/kg | BDL (DL:0.03) |
| | 1,2,3,7,8-PeCDF | | ng/kg | BDL (DL:0.03) |
| | 2,3,4,7,8-PeCDF | | ng/kg | BDL (DL:0.03) |
| | 1,2,3,4,7,8-HxCDF | | ng/kg | BDL (DL:0.03) |
| | 1,2,3,6,7,8-HxCDF | | ng/kg | BDL (DL:0.03) |
| | 2,3,4,6,7,8-HxCDF | | ng/kg | BDL (DL:0.03) |
| | 1,2,3,7,8,9-HxCDF | | ng/kg | BDL (DL:0.03) |
| | 1,2,3,4,6,7,8-HpCDF | | ng/kg | BDL (DL:0.03) |
| | 1,2,3,4,7,8,9-HpCDF | | ng/kg | BDL (DL:0.03) |
| | OCDF | | ng/kg | BDL (DL:0.03) |
| | 2,3,7,8-TCDD | | ng/kg | BDL (DL:0.06) |
| | 1,2,3,7,8-PeCDD | | ng/kg | BDL (DL:0.06) |
| | 1,2,3,4,7,8-HxCDD | | ng/kg | BDL (DL:0.06) |
| | 1,2,3,6,7,8-HxCDD | | ng/kg | BDL (DL:0.06) |
| | 1,2,3,7,8,9-HxCDD | | ng/kg | BDL (DL:0.06) |
| | 1,2,3,4,6,7,8-HpCDD | | ng/kg | BDL (DL:0.06) |
| | OCDD | | ng/kg | BDL (DL:0.06) |
| | Total Dioxins | | ng/kg | BDL (DL:0.06) |
| | Total Furans | | ng/kg | BDL (DL:0.03) |
| TotalTEQ | ng/kg | BDL (DL:0.06) | | |

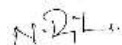
BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd



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TEST REPORT

TEST REPORT NO: CTL/CH/N-3668/2016-17

DATE : 09.11.2016

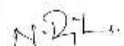
SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD

COMPANY NAME **M/s. Cholamandalam MS Risk Services Limited,**
 ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
 Chennai - 600 001.

SAMPLE DESCRIPTION Soil
 PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
 SAMPLING LOCATION Jivrajbhai Bathani (West)
 GPS READING 21°24'55.24"N 72° 09'30.41"E
 SAMPLE QUANTITY 1 Kg
 PACKING Received in Packed Condition
 SAMPLING DATE 16.08.2016
 SAMPLE RECEIVED ON 19.08.2016
 ANALYSIS STARTED ON 20.08.2016
 ANALYSIS COMPLETED ON 09.11.2016

| S.NO | PARAMETERS | METHOD | UNITS | RESULTS | |
|------|------------------------------------|--|-------|-----------------|---------------|
| 1 | Moisture | IS 2720 (Part 2):1973 (R.2010) | % | 9.79 | |
| 2 | Total Organic Carbon | FAO Method (Pg. No.61) 2007 (walkley Black wet combustion method) | % | 0.44 | |
| 3 | Particle Size Distribution: | | | Retained | Passed |
| | 2.8 mm | FAO Method | % | 25.10 | 74.9 |
| | 2.0 mm | | % | 5.33 | 69.57 |
| | 1.7 mm | | % | 3.15 | 66.42 |
| | 0.85 mm | | % | 8.52 | 57.9 |
| | 0.71 mm | | % | 6.24 | 51.66 |
| | 0.60 mm | | % | 2.17 | 49.49 |
| | 0.50 mm | | % | 5.66 | 43.83 |

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TEST REPORT

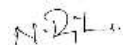
TEST REPORT NO: CTL/CH/N-3668/2016-17 DATE : 09.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|----------|---------------------|---------------|-------|---------------|
| 4 | Dioxins | USEPA 1613 | | |
| | 2,3,7,8-TCDF | | ng/kg | BDL (DL:0.03) |
| | 1,2,3,7,8-PeCDF | | ng/kg | BDL (DL:0.03) |
| | 2,3,4,7,8-PeCDF | | ng/kg | BDL (DL:0.03) |
| | 1,2,3,4,7,8-HxCDF | | ng/kg | BDL (DL:0.03) |
| | 1,2,3,6,7,8-HxCDF | | ng/kg | BDL (DL:0.03) |
| | 2,3,4,6,7,8-HxCDF | | ng/kg | BDL (DL:0.03) |
| | 1,2,3,7,8,9-HxCDF | | ng/kg | BDL (DL:0.03) |
| | 1,2,3,4,6,7,8-HpCDF | | ng/kg | BDL (DL:0.03) |
| | 1,2,3,4,7,8,9-HpCDF | | ng/kg | BDL (DL:0.03) |
| | OCDF | | ng/kg | BDL (DL:0.03) |
| | 2,3,7,8-TCDD | | ng/kg | BDL (DL:0.06) |
| | 1,2,3,7,8-PeCDD | | ng/kg | BDL (DL:0.06) |
| | 1,2,3,4,7,8-HxCDD | | ng/kg | BDL (DL:0.06) |
| | 1,2,3,6,7,8-HxCDD | | ng/kg | BDL (DL:0.06) |
| | 1,2,3,7,8,9-HxCDD | | ng/kg | BDL (DL:0.06) |
| | 1,2,3,4,6,7,8-HpCDD | | ng/kg | BDL (DL:0.06) |
| | OCDD | | ng/kg | BDL (DL:0.06) |
| | Total Dioxins | | ng/kg | BDL (DL:0.06) |
| | Total Furans | | ng/kg | BDL (DL:0.03) |
| TotalTEQ | ng/kg | BDL (DL:0.06) | | |

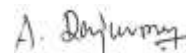
BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd



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TEST REPORT

TEST REPORT NO: CTL/CH/N-3669/2016-17

DATE : 09.11.2016

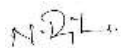
SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD

COMPANY NAME **M/s. Cholamandalam MS Risk Services Limited,**
 ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
 Chennai - 600 001.

SAMPLE DESCRIPTION Soil
 PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
 SAMPLING LOCATION Kalubhai Lavji Italia (North)
 GPS READING 21°24'49.38"N 72° 09'50.76"E
 SAMPLE QUANTITY 1 Kg
 PACKING Received in Packed Condition
 SAMPLING DATE 16.08.2016
 SAMPLE RECEIVED ON 19.08.2016
 ANALYSIS STARTED ON 20.08.2016
 ANALYSIS COMPLETED ON 09.11.2016

| S.NO | PARAMETERS | METHOD | UNITS | RESULTS | |
|------|------------------------------------|--|-------|-----------------|---------------|
| 1 | Moisture | IS 2720 (Part 2):1973 (R.2010) | % | 13.81 | |
| 2 | Total Organic Carbon | FAO Method (Pg. No.61) 2007 (walkley Black wet combustion method) | % | 0.21 | |
| 3 | Particle Size Distribution: | | | Retained | Passed |
| | 2.8 mm | FAO Method | % | 26.89 | 73.11 |
| | 2.0 mm | | % | 4.20 | 68.91 |
| | 1.7 mm | | % | 5.32 | 63.59 |
| | 0.85 mm | | % | 11.00 | 52.59 |
| | 0.71 mm | | % | 3.25 | 49.34 |
| | 0.60 mm | | % | 2.20 | 47.14 |
| | 0.50 mm | | % | 3.90 | 43.24 |

For Chennai Testing Laboratory Pvt Ltd



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TEST REPORT

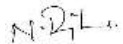
TEST REPORT NO: CTL/CH/N-3669/2016-17 DATE : 09.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|----------|---------------------|---------------|-------|---------------|
| 4 | Dioxins | USEPA 1613 | | |
| | 2,3,7,8-TCDF | | ng/kg | BDL (DL:0.03) |
| | 1,2,3,7,8-PeCDF | | ng/kg | BDL (DL:0.03) |
| | 2,3,4,7,8-PeCDF | | ng/kg | BDL (DL:0.03) |
| | 1,2,3,4,7,8-HxCDF | | ng/kg | BDL (DL:0.03) |
| | 1,2,3,6,7,8-HxCDF | | ng/kg | BDL (DL:0.03) |
| | 2,3,4,6,7,8-HxCDF | | ng/kg | BDL (DL:0.03) |
| | 1,2,3,7,8,9-HxCDF | | ng/kg | BDL (DL:0.03) |
| | 1,2,3,4,6,7,8-HpCDF | | ng/kg | BDL (DL:0.03) |
| | 1,2,3,4,7,8,9-HpCDF | | ng/kg | BDL (DL:0.03) |
| | OCDF | | ng/kg | BDL (DL:0.03) |
| | 2,3,7,8-TCDD | | ng/kg | BDL (DL:0.06) |
| | 1,2,3,7,8-PeCDD | | ng/kg | BDL (DL:0.06) |
| | 1,2,3,4,7,8-HxCDD | | ng/kg | BDL (DL:0.06) |
| | 1,2,3,6,7,8-HxCDD | | ng/kg | BDL (DL:0.06) |
| | 1,2,3,7,8,9-HxCDD | | ng/kg | BDL (DL:0.06) |
| | 1,2,3,4,6,7,8-HpCDD | | ng/kg | BDL (DL:0.06) |
| | OCDD | | ng/kg | BDL (DL:0.06) |
| | Total Dioxins | | ng/kg | BDL (DL:0.06) |
| | Total Furans | | ng/kg | BDL (DL:0.03) |
| TotalTEQ | ng/kg | BDL (DL:0.06) | | |

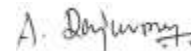
BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd



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Page 2 of 2

TEST REPORT

TEST REPORT NO: CTL/CH/N-3670/2016-17

DATE :01.11.2016

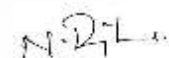
SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD

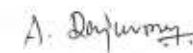
COMPANY NAME **M/s. Cholamandalam MS Risk Services Limited,**
 ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
 Chennai - 600 001.

SAMPLE DESCRIPTION Sediment (S1)
 PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
 SAMPLING LOCATION Sosiya Area
 GPS READING 21°26'43.41"N 72°13'33.86"E
 SAMPLE QUANTITY 1 Kg
 PACKING Received in Packed Condition
 SAMPLING DATE 16.08.2016
 SAMPLE RECEIVED ON 19.08.2016
 ANALYSIS STARTED ON 20.08.2016
 ANALYSIS COMPLETED ON 31.10.2016

| S.NO | PARAMETERS | METHOD | UNITS | RESULTS | |
|------|---|--|-------|-----------------|---------------|
| 1 | Moisture | IS 2720 (Part 2):1973 (R.2010) | % | 17.23 | |
| 2 | Total Organic Carbon | FAO Method (Pg. No.61) 2007 (walkley Black wet combustion method) | % | 0.84 | |
| 3 | Cadmium as Cd | EPA 3050B-1996 (Rev-2)/EPA 7130-1986 | mg/kg | 2.84 | |
| 4 | Hexavalent Chromium as Cr ⁶⁺ | EPA Method - 7196A:1992 (Rev-1) | mg/kg | BDL (DL:0.1) | |
| 5 | Lead as Pb | EPA 3050B-1996 (Rev-2)/EPA 7420-1986 | mg/kg | 328.19 | |
| 6 | Mercury as Hg | EPA 7471A-2007 (Rev-2) | mg/kg | BDL (DL:0.2) | |
| 7 | Methyl Mercury | CTL/SOP/SOIL/023 | mg/kg | BDL (DL:0.5) | |
| 8 | Particle Size Distribution: | | | Retained | Passed |
| | 1.7 mm | FAO Method | % | 1.82 | 98.18 |
| | 0.85 mm | | % | 2.56 | 95.62 |
| | 0.71 mm | | % | 1.52 | 94.10 |
| | 0.60 mm | | % | 1.88 | 92.22 |
| | 0.50 mm | | % | 4.56 | 87.66 |
| | 0.18 mm | | % | 18.66 | 69.00 |

BDL - Below Detection Limit; DL - Detection Limit


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Authorised Signatory

TEST REPORT

TEST REPORT NO: CTL/CH/N-3670/2016-17

DATE :01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------------------------|---|-----------------------|--------------|--------------|
| 9 | Poly Nuclear Aromatic Hydrocarbons(as PAH) | | | |
| | Naphthalene | CTL/SOP/SOIL/124-2014 | mg/kg | BDL(DL:0.01) |
| | Acenaphthylene | | mg/kg | 0.101 |
| | 2-Bromo-Naphthalene | | mg/kg | BDL(DL:0.02) |
| | Acenaphthene | | mg/kg | 0.085 |
| | Fluorene | | mg/kg | 0.047 |
| | Phenanthrene | | mg/kg | 0.023 |
| | Anthracene | | mg/kg | 0.014 |
| | Pyrene | | mg/kg | 0.152 |
| | Fluoranthene | | mg/kg | 0.054 |
| | Chrysene | | mg/kg | 0.125 |
| | Benz[a]anthracene | | mg/kg | BDL(DL:0.02) |
| | Benzo[a]pyrene | | mg/kg | BDL(DL:0.02) |
| | Benzo[b]fluoranthene | | mg/kg | BDL(DL:0.03) |
| | Benzo[ghi]perylene | | mg/kg | BDL(DL:0.03) |
| Dibenz[a,h]anthracene | mg/kg | | BDL(DL:0.03) | |
| Indeno[1,2,3-cd]pyrene | mg/kg | BDL(DL:0.04) | | |
| 10 | Poly Chlorinated Biphenyls(as PCB) | | | |
| | 2-Chlorobiphenyl | CTL/SOP/SOIL/132-2014 | mg/kg | 0.011 |
| | 2,3-dichlorobiphenyl | | mg/kg | 0.031 |
| | 2,5,4'-Trichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-tetrachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,4',6'-Pentachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5',6'-Hexachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,4',6'-Heptachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,5,6,6'-Octachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PCB | | mg/kg | 0.042 |

BDL - Below Detection Limit; DL - Detection Limit

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N. D. L.
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Page 2 of 3

TEST REPORT

TEST REPORT NO: CTL/CH/N-3670/2016-17

DATE :01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|-------|--|-----------------------|-----------------------|--------------|
| 11 | Poly Brominated Biphenyls(as PBB) | | | |
| | 2,3,3',4,4',5-Hexabromobiphenyl | CTL/SOP/SOIL/139-2014 | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 3,3',4,4'-Tetrabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 3,3',4,4',5-Pentabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Decabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PBB | | mg/kg | BDL(DL:0.01) |
| 12 | Poly Bromo Diethyl Ether (as PBDE) | | | |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | CTL/SOP/SOIL/147-2014 | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5-Pentabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',6-Pentabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-Tetrabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | Sum of PBDE | | mg/kg | BDL(DL:0.01) |
| 13 | Polychlorinated Naphthalene | | CTL/SOP/SOIL/151-2014 | mg/kg |
| 14 | Tributyltin | CTL/SOP/SOIL/158-2014 | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
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A. D. Jeyaraj
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Page 3 of 3

TEST REPORT

TEST REPORT NO: CTL/CH/N-3671/2016-17

DATE :01.11.2016

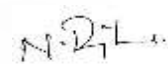
SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD


COMPANY NAME **M/s. Cholamandalam MS Risk Services Limited,**
 ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
 Chennai - 600 001.

SAMPLE DESCRIPTION Sediment (S2)
 PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
 SAMPLING LOCATION Khushboo India Pvt. Ltd. (V6)
 GPS READING 21°26'14.41"N 72°13'20.91"E
 SAMPLE QUANTITY 1 Kg
 PACKING Received in Packed Condition
 SAMPLING DATE 16.08.2016
 SAMPLE RECEIVED ON 19.08.2016
 ANALYSIS STARTED ON 20.08.2016
 ANALYSIS COMPLETED ON 31.10.2016

| S.NO | PARAMETERS | METHOD | UNITS | RESULTS | |
|------|---|--|-------|-----------------|---------------|
| 1 | Moisture | IS 2720 (Part 2):1973 (R.2010) | % | 16.4 | |
| 2 | Total Organic Carbon | FAO Method (Pg. No.61) 2007 (walkley Black wet combustion method) | % | 0.85 | |
| 3 | Cadmium as Cd | EPA 3050B-1996 (Rev-2)/EPA 7130-1986 | mg/kg | 2.68 | |
| 4 | Hexavalent Chromium as Cr ⁶⁺ | EPA Method - 7196A:1992 (Rev-1) | mg/kg | BDL (DL:0.1) | |
| 5 | Lead as Pb | EPA 3050B-1996 (Rev-2)/EPA 7420-1986 | mg/kg | 248.83 | |
| 6 | Mercury as Hg | EPA 7471A-2007 (Rev-2) | mg/kg | BDL (DL:0.2) | |
| 7 | Methyl Mercury | CTL/SOP/SOIL/023 | mg/kg | BDL (DL:0.5) | |
| 8 | Particle Size Distribution: | | | Retained | Passed |
| | 1.70 mm | FAO Method | % | 2.55 | 97.45 |
| | 0.85 mm | | % | 2.04 | 95.41 |
| | 0.71 mm | | % | 2.59 | 92.81 |
| | 0.60 mm | | % | 2.11 | 90.70 |
| | 0.50 mm | | % | 3.18 | 87.52 |
| | 0.18 mm | | % | 14.86 | 72.67 |

BDL - Below Detection Limit; DL - Detection Limit


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For Chennai Testing Laboratory Pvt Ltd

Authorised Signatory

TEST REPORT

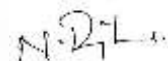
TEST REPORT NO: CTL/CH/N-3671/2016-17

DATE :01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------------------------|---|-----------------------|--------------|--------------|
| 9 | Poly Nuclear Aromatic Hydrocarbons(as PAH) | | | |
| | Naphthalene | CTL/SOP/SOIL/124-2014 | mg/kg | BDL(DL:0.01) |
| | Acenaphthylene | | mg/kg | 0.026 |
| | 2-Bromo-Naphthalene | | mg/kg | BDL(DL:0.02) |
| | Acenaphthene | | mg/kg | 0.121 |
| | Fluorene | | mg/kg | 0.035 |
| | Phenanthrene | | mg/kg | 0.047 |
| | Anthracene | | mg/kg | 0.114 |
| | Pyrene | | mg/kg | 0.058 |
| | Fluoranthene | | mg/kg | 0.081 |
| | Chrysene | | mg/kg | 0.033 |
| | Benz[a]anthracene | | mg/kg | BDL(DL:0.02) |
| | Benzo[a]pyrene | | mg/kg | BDL(DL:0.02) |
| | Benzo[b]fluoranthene | | mg/kg | BDL(DL:0.03) |
| | Benzo[ghi]perylene | | mg/kg | BDL(DL:0.03) |
| Dibenz[a,h]anthracene | mg/kg | | BDL(DL:0.03) | |
| Indeno[1,2,3-cd]pyrene | mg/kg | BDL(DL:0.04) | | |
| 10 | Poly Chlorinated Biphenyls(as PCB) | | | |
| | 2-Chlorobiphenyl | CTL/SOP/SOIL/132-2014 | mg/kg | BDL(DL:0.01) |
| | 2,3-dichlorobiphenyl | | mg/kg | 0.013 |
| | 2,5,4'-Trichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-tetrachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,4',6'-Pentachlorobiphenyl | | mg/kg | 0.011 |
| | 2,2',4,4',5',6'-Hexachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,4',6'-Heptachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,5,6,6'-Octachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PCB | | mg/kg | 0.024 |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd


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TEST REPORT

TEST REPORT NO: CTL/CH/N-3671/2016-17

DATE :01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|-------|--|-----------------------|-----------------------|--------------|
| 11 | Poly Brominated Biphenyls(as PBB) | | | |
| | 2,3,3',4,4',5-Hexabromobiphenyl | CTL/SOP/SOIL/139-2014 | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 3,3',4,4'-Tetrabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 3,3',4,4',5-Pentabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Decabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PBB | | mg/kg | BDL(DL:0.01) |
| 12 | Poly Bromo Diethyl Ether (as PBDE) | | | |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | CTL/SOP/SOIL/147-2014 | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5-Pentabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',6-Pentabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-Tetrabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | Sum of PBDE | | mg/kg | BDL(DL:0.01) |
| 13 | Polychlorinated Naphthalene | | CTL/SOP/SOIL/151-2014 | mg/kg |
| 14 | Tributyltin | CTL/SOP/SOIL/158-2014 | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
Verified by

A. D. Jeyaraj
Authorised Signatory

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TEST REPORT

TEST REPORT NO: CTL/CH/N-3672/2016-17

DATE : 01.11.2016

SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD

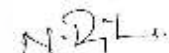
COMPANY NAME **M/s. Cholamandalam MS Risk Services Limited,**
 ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
 Chennai - 600 001.

SAMPLE DESCRIPTION Sediment (S3)
 PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
 SAMPLING LOCATION M.V.Ship Trade Pvt. Ltd. (136)
 GPS READING 21°25'36.38"N 72°12'56.45"E
 SAMPLE QUANTITY 1 Kg
 PACKING Received in Packed Condition
 SAMPLING DATE 16.08.2016
 SAMPLE RECEIVED ON 19.08.2016
 ANALYSIS STARTED ON 20.08.2016
 ANALYSIS COMPLETED ON 31.10.2016

| S.NO | PARAMETERS | METHOD | UNITS | RESULTS | |
|------|---|--|-------|-----------------|---------------|
| 1 | Moisture | IS 2720 (Part 2):1973 (R.2010) | % | 17.14 | |
| 2 | Total Organic Carbon | FAO Method (Pg. No.61) 2007 (walkley Black wet combustion method) | % | 0.92 | |
| 3 | Cadmium as Cd | EPA 3050B-1996 (Rev-2)/EPA 7130-1986 | mg/kg | BDL (DL:2.0) | |
| 4 | Hexavalent Chromium as Cr ⁶⁺ | EPA Method - 7196A:1992 (Rev-1) | mg/kg | BDL (DL:0.1) | |
| 5 | Lead as Pb | EPA 3050B-1996 (Rev-2)/EPA 7420-1986 | mg/kg | 170.75 | |
| 6 | Mercury as Hg | EPA 7471A-2007 (Rev-2) | mg/kg | BDL (DL:0.2) | |
| 7 | Methyl Mercury | CTL/SOP/SOIL/023 | mg/kg | BDL (DL:0.5) | |
| 8 | Particle Size Distribution: | | | Retained | Passed |
| | 1.7 mm | FAO Method | % | 2.87 | 97.13 |
| | 0.85 mm | | % | 1.54 | 95.59 |
| | 0.71 mm | | % | 2.36 | 93.23 |
| | 0.60 mm | | % | 2.00 | 91.23 |
| | 0.50 mm | | % | 2.57 | 88.66 |
| | 0.18 mm | | % | 15.94 | 72.72 |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd


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TEST REPORT

TEST REPORT NO: CTL/CH/N-3672/2016-17

DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------------------------|---|-----------------------|--------------|--------------|
| 9 | Poly Nuclear Aromatic Hydrocarbons(as PAH) | | | |
| | Naphthalene | CTL/SOP/SOIL/124-2014 | mg/kg | BDL(DL:0.01) |
| | Acenaphthylene | | mg/kg | 0.047 |
| | 2-Bromo-Naphthalene | | mg/kg | BDL(DL:0.02) |
| | Acenaphthene | | mg/kg | 0.081 |
| | Fluorene | | mg/kg | 0.014 |
| | Phenanthrene | | mg/kg | 0.036 |
| | Anthracene | | mg/kg | 0.142 |
| | Pyrene | | mg/kg | 0.068 |
| | Fluoranthene | | mg/kg | 0.027 |
| | Chrysene | | mg/kg | 0.014 |
| | Benz[a]anthracene | | mg/kg | BDL(DL:0.02) |
| | Benzo[a]pyrene | | mg/kg | BDL(DL:0.02) |
| | Benzo[b]fluoranthene | | mg/kg | BDL(DL:0.03) |
| | Benzo[ghi]perylene | | mg/kg | BDL(DL:0.03) |
| Dibenz[a,h]anthracene | mg/kg | | BDL(DL:0.03) | |
| Indeno[1,2,3-cd]pyrene | mg/kg | BDL(DL:0.04) | | |
| 10 | Poly Chlorinated Biphenyls(as PCB) | | | |
| | 2-Chlorobiphenyl | CTL/SOP/SOIL/132-2014 | mg/kg | BDL(DL:0.01) |
| | 2,3-dichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,5,4'-Trichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-tetrachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,4',6'-Pentachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5',6'-Hexachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,4',6'-Heptachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,5,6,6'-Octachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PCB | | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd

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Page 2 of 3

TEST REPORT

TEST REPORT NO: CTL/CH/N-3672/2016-17

DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|-------|--|-----------------------|-----------------------|--------------|
| 11 | Poly Brominated Biphenyls(as PBB) | | | |
| | 2,3,3',4,4',5-Hexabromobiphenyl | CTL/SOP/SOIL/139-2014 | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 3,3',4,4'-Tetrabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 3,3',4,4',5-Pentabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Decabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PBB | | mg/kg | BDL(DL:0.01) |
| 12 | Poly Bromo Diethyl Ether (as PBDE) | | | |
| | 2,2',4,4',5,5'-Hexabromobiphenylether | CTL/SOP/SOIL/147-2014 | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5-Pentabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',6-Pentabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-Tetrabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | Sum of PBDE | | mg/kg | BDL(DL:0.01) |
| 13 | Polychlorinated Naphthalene | | CTL/SOP/SOIL/151-2014 | mg/kg |
| 14 | Tributyltin | CTL/SOP/SOIL/158-2014 | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
Verified by

A. D. Jeyaraj
Authorised Signatory

Page 3 of 3

TEST REPORT

TEST REPORT NO: CTL/CH/N-3673/2016-17

DATE : 01.11.2016

SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD

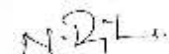
COMPANY NAME **M/s. Cholamandalam MS Risk Services Limited,**
 ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
 Chennai - 600 001.

SAMPLE DESCRIPTION Sediment (S4)
 PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
 SAMPLING LOCATION Hooghly Ship Breakers Ltd. (V2)
 GPS READING 21°25'03.17"N 72°12'22.09"E
 SAMPLE QUANTITY 1 Kg
 PACKING Received in Packed Condition
 SAMPLING DATE 16.08.2016
 SAMPLE RECEIVED ON 19.08.2016
 ANALYSIS STARTED ON 20.08.2016
 ANALYSIS COMPLETED ON 31.10.2016

| S.NO | PARAMETERS | METHOD | UNITS | RESULTS | |
|------|---|--|-------|-----------------|---------------|
| 1 | Moisture | IS 2720 (Part 2):1973 (R.2010) | % | 16.7 | |
| 2 | Total Organic Carbon | FAO Method (Pg. No.61) 2007 (walkley Black wet combustion method) | % | 0.88 | |
| 3 | Cadmium as Cd | EPA 3050B-1996 (Rev-2)/EPA 7130-1986 | mg/kg | 3.21 | |
| 4 | Hexavalent Chromium as Cr ⁶⁺ | EPA Method - 7196A:1992 (Rev-1) | mg/kg | BDL (DL:0.1) | |
| 5 | Lead as Pb | EPA 3050B-1996 (Rev-2)/EPA 7420-1986 | mg/kg | 273.81 | |
| 6 | Mercury as Hg | EPA 7471A-2007 (Rev-2) | mg/kg | BDL (DL:0.2) | |
| 7 | Methyl Mercury | CTL/SOP/SOIL/023 | mg/kg | BDL (DL:0.5) | |
| 8 | Particle Size Distribution: | | | Retained | Passed |
| | 1.7 mm | FAO Method | % | 2.22 | 97.78 |
| | 0.85 mm | | % | 2.31 | 95.47 |
| | 0.71 mm | | % | 2.05 | 93.42 |
| | 0.60 mm | | % | 2.69 | 90.73 |
| | 0.50 mm | | % | 3.88 | 86.85 |
| | 0.18 mm | | % | 17.52 | 69.33 |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd


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Authorised Signatory

TEST REPORT

TEST REPORT NO: CTL/CH/N-3673/2016-17

DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------------------------|---|-----------------------|--------------|--------------|
| 9 | Poly Nuclear Aromatic Hydrocarbons(as PAH) | | | |
| | Naphthalene | CTL/SOP/SOIL/124-2014 | mg/kg | BDL(DL:0.01) |
| | Acenaphthylene | | mg/kg | 0.018 |
| | 2-Bromo-Naphthalene | | mg/kg | BDL(DL:0.02) |
| | Acenaphthene | | mg/kg | 0.052 |
| | Fluorene | | mg/kg | 0.071 |
| | Phenanthrene | | mg/kg | 0.026 |
| | Anthracene | | mg/kg | 0.066 |
| | Pyrene | | mg/kg | 0.018 |
| | Fluoranthene | | mg/kg | 0.012 |
| | Chrysene | | mg/kg | 0.019 |
| | Benz[a]anthracene | | mg/kg | BDL(DL:0.02) |
| | Benzo[a]pyrene | | mg/kg | BDL(DL:0.02) |
| | Benzo[b]fluoranthene | | mg/kg | BDL(DL:0.03) |
| | Benzo[ghi]perylene | | mg/kg | BDL(DL:0.03) |
| Dibenz[a,h]anthracene | mg/kg | | BDL(DL:0.03) | |
| Indeno[1,2,3-cd]pyrene | mg/kg | BDL(DL:0.04) | | |
| 10 | Poly Chlorinated Biphenyls(as PCB) | | | |
| | 2-Chlorobiphenyl | CTL/SOP/SOIL/132-2014 | mg/kg | BDL(DL:0.01) |
| | 2,3-dichlorobiphenyl | | mg/kg | 0.032 |
| | 2,5,4'-Trichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-tetrachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,4',6'-Pentachlorobiphenyl | | mg/kg | 0.013 |
| | 2,2',4,4',5',6'-Hexachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,4',6'-Heptachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,5,6,6'-Octachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PCB | | mg/kg | 0.045 |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
Verified by

A. Srinivasan
Authorised Signatory

Page 2 of 3

TEST REPORT

TEST REPORT NO: CTL/CH/N-3673/2016-17

DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|-------|--|-----------------------|-----------------------|--------------|
| 11 | Poly Brominated Biphenyls(as PBB) | | | |
| | 2,3,3',4,4',5-Hexabromobiphenyl | CTL/SOP/SOIL/139-2014 | mg/kg | 0.012 |
| | 2,2',4,4',5,5'-Hexabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 3,3',4,4'-Tetrabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 3,3',4,4',5-Pentabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Decabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PBB | | mg/kg | 0.012 |
| 12 | Poly Bromo Diethyl Ether (as PBDE) | | | |
| | 2,2',4,4',5,5'-Hexabromobiphenylether | CTL/SOP/SOIL/147-2014 | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5-Pentabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',6-Pentabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-Tetrabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | Sum of PBDE | | mg/kg | BDL(DL:0.01) |
| 13 | Polychlorinated Naphthalene | | CTL/SOP/SOIL/151-2014 | mg/kg |
| 14 | Tributyltin | CTL/SOP/SOIL/158-2014 | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
Verified by

A. D. Jeyaraj
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TEST REPORT

TEST REPORT NO: CTL/CH/N-3674/2016-17

DATE : 01.11.2016

SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD

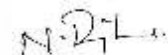
COMPANY NAME **M/s. Cholamandalam MS Risk Services Limited,**
 ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
 Chennai - 600 001.

SAMPLE DESCRIPTION Sediment (S5)
 PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
 SAMPLING LOCATION Goyal Traders (51)
 GPS READING 21°24'31.34"N 72°11'48.63"E
 SAMPLE QUANTITY 1 Kg
 PACKING Received in Packed Condition
 SAMPLING DATE 16.08.2016
 SAMPLE RECEIVED ON 19.08.2016
 ANALYSIS STARTED ON 20.08.2016
 ANALYSIS COMPLETED ON 31.10.2016

| S.NO | PARAMETERS | METHOD | UNITS | RESULTS | |
|------|---|--|-------|-----------------|---------------|
| 1 | Moisture | IS 2720 (Part 2):1973 (R.2010) | % | 20.45 | |
| 2 | Total Organic Carbon | FAO Method (Pg. No.61) 2007 (walkley Black wet combustion method) | % | 1.01 | |
| 3 | Cadmium as Cd | EPA 3050B-1996 (Rev-2)/EPA 7130-1986 | mg/kg | 2.86 | |
| 4 | Hexavalent Chromium as Cr ⁶⁺ | EPA Method - 7196A:1992 (Rev-1) | mg/kg | BDL (DL:0.1) | |
| 5 | Lead as Pb | EPA 3050B-1996 (Rev-2)/EPA 7420-1986 | mg/kg | 180.32 | |
| 6 | Mercury as Hg | EPA 7471A-2007 (Rev-2) | mg/kg | BDL (DL:0.2) | |
| 7 | Methyl Mercury | CTL/SOP/SOIL/023 | mg/kg | BDL (DL:0.5) | |
| 8 | Particle Size Distribution: | | | Retained | Passed |
| | 1.7 mm | FAO Method | % | 1.85 | 98.15 |
| | 0.85 mm | | % | 2.11 | 96.04 |
| | 0.71 mm | | % | 2.30 | 93.74 |
| | 0.60 mm | | % | 2.54 | 91.2 |
| | 0.50 mm | | % | 4.89 | 86.31 |
| | 0.18 mm | | % | 19.22 | 67.09 |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd


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Authorised Signatory

TEST REPORT

TEST REPORT NO: CTL/CH/N-3674/2016-17

DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------------------------|---|-----------------------|--------------|--------------|
| 9 | Poly Nuclear Aromatic Hydrocarbons(as PAH) | | | |
| | Naphthalene | CTL/SOP/SOIL/124-2014 | mg/kg | BDL(DL:0.01) |
| | Acenaphthylene | | mg/kg | 0.011 |
| | 2-Bromo-Naphthalene | | mg/kg | BDL(DL:0.02) |
| | Acenaphthene | | mg/kg | 0.087 |
| | Fluorene | | mg/kg | 0.054 |
| | Phenanthrene | | mg/kg | 0.017 |
| | Anthracene | | mg/kg | 0.058 |
| | Pyrene | | mg/kg | 0.017 |
| | Fluoranthene | | mg/kg | 0.256 |
| | Chrysene | | mg/kg | 0.024 |
| | Benz[a]anthracene | | mg/kg | BDL(DL:0.02) |
| | Benzo[a]pyrene | | mg/kg | BDL(DL:0.02) |
| | Benzo[b]fluoranthene | | mg/kg | BDL(DL:0.03) |
| | Benzo[ghi]perylene | | mg/kg | BDL(DL:0.03) |
| Dibenz[a,h]anthracene | mg/kg | | BDL(DL:0.03) | |
| Indeno[1,2,3-cd]pyrene | mg/kg | BDL(DL:0.04) | | |
| 10 | Poly Chlorinated Biphenyls(as PCB) | | | |
| | 2-Chlorobiphenyl | CTL/SOP/SOIL/132-2014 | mg/kg | BDL(DL:0.01) |
| | 2,3-dichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,5,4'-Trichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-tetrachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,4',6'-Pentachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5',6'-Hexachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,4',6'-Heptachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,5,6,6'-Octachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PCB | | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
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Page 2 of 3

TEST REPORT

TEST REPORT NO: CTL/CH/N-3674/2016-17

DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|-------|--|-----------------------|-------|--------------|
| 11 | Poly Brominated Biphenyls (as PBB) | CTL/SOP/SOIL/139-2014 | mg/kg | BDL(DL:0.01) |
| | 2,3,3',4,4',5-Hexabromobiphenyl | | | |
| | 2,2',4,4',5,5'-Hexabromobiphenyl | | | |
| | 3,3',4,4'-Tetrabromobiphenyl | | | |
| | 3,3',4,4',5-Pentabromobiphenyl | | | |
| | Decabromobiphenyl | | | |
| | Sum of PBB | | | |
| 12 | Poly Bromo Diethyl Ether (as PBDE) | CTL/SOP/SOIL/147-2014 | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromobiphenylether | | | |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | | | |
| | 2,2',4,4',5-Pentabromodiphenylether | | | |
| | 2,2',4,4',6-Pentabromodiphenylether | | | |
| | 2,2',4,4'-Tetrabromodiphenylether | | | |
| | Sum of PBDE | | | |
| 13 | Polychlorinated Naphthalene | CTL/SOP/SOIL/151-2014 | mg/kg | BDL(DL:0.01) |
| 14 | Tributyltin | CTL/SOP/SOIL/158-2014 | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
Verified by

A. D. Jeyaraj
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Page 3 of 3

TEST REPORT

TEST REPORT NO: CTL/CH/N-3675/2016-17

DATE : 01.11.2016

SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD

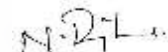
COMPANY NAME **M/s. Cholamandalam MS Risk Services Limited,**
ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
Chennai - 600 001.

SAMPLE DESCRIPTION Sediment (S6)
PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
SAMPLING LOCATION Shiv Recycling Company (36)
GPS READING 21°24'10.53"N 72°11'33.32"E
SAMPLE QUANTITY 1 Kg
PACKING Received in Packed Condition
SAMPLING DATE 16.08.2016
SAMPLE RECEIVED ON 19.08.2016
ANALYSIS STARTED ON 20.08.2016
ANALYSIS COMPLETED ON 31.10.2016

| S.NO | PARAMETERS | METHOD | UNITS | RESULTS | |
|------|---|--|-------|-----------------|---------------|
| 1 | Moisture | IS 2720 (Part 2):1973 (R.2010) | % | 31.45 | |
| 2 | Total Organic Carbon | FAO Method (Pg. No.61) 2007 (walkley Black wet combustion method) | % | 0.40 | |
| 3 | Cadmium as Cd | EPA 3050B-1996 (Rev-2)/EPA 7130-1986 | mg/kg | 2.61 | |
| 4 | Hexavalent Chromium as Cr ⁶⁺ | EPA Method - 7196A:1992 (Rev-1) | mg/kg | BDL (DL:0.1) | |
| 5 | Lead as Pb | EPA 3050B-1996 (Rev-2)/EPA 7420-1986 | mg/kg | 211.93 | |
| 6 | Mercury as Hg | EPA 7471A-2007 (Rev-2) | mg/kg | BDL (DL:0.2) | |
| 7 | Methyl Mercury | CTL/SOP/SOIL/023 | mg/kg | BDL (DL:0.5) | |
| 8 | Particle Size Distribution: | | | Retained | Passed |
| | 1.7 mm | FAO Method | % | 2.35 | 97.65 |
| | 0.85 mm | | % | 2.10 | 95.55 |
| | 0.71 mm | | % | 2.00 | 93.55 |
| | 0.60 mm | | % | 1.95 | 91.6 |
| | 0.50 mm | | % | 8.12 | 83.48 |
| | 0.18 mm | | % | 14.56 | 68.92 |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd


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TEST REPORT

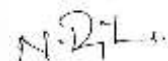
TEST REPORT NO: CTL/CH/N-3675/2016-17

DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------------------------|---|-----------------------|--------------|--------------|
| 9 | Poly Nuclear Aromatic Hydrocarbons(as PAH) | | | |
| | Naphthalene | CTL/SOP/SOIL/124-2014 | mg/kg | 0.019 |
| | Acenaphthylene | | mg/kg | 0.151 |
| | 2-Bromo-Naphthalene | | mg/kg | BDL(DL:0.02) |
| | Acenaphthene | | mg/kg | 0.119 |
| | Fluorene | | mg/kg | 0.113 |
| | Phenanthrene | | mg/kg | 0.038 |
| | Anthracene | | mg/kg | 0.022 |
| | Pyrene | | mg/kg | 0.018 |
| | Fluoranthene | | mg/kg | 0.017 |
| | Chrysene | | mg/kg | 0.015 |
| | Benz[a]anthracene | | mg/kg | BDL(DL:0.02) |
| | Benzo[a]pyrene | | mg/kg | BDL(DL:0.02) |
| | Benzo[b]fluoranthene | | mg/kg | BDL(DL:0.03) |
| | Benzo[ghi]perylene | | mg/kg | BDL(DL:0.03) |
| Dibenz[a,h]anthracene | mg/kg | | BDL(DL:0.03) | |
| Indeno[1,2,3-cd]pyrene | mg/kg | BDL(DL:0.04) | | |
| 10 | Poly Chlorinated Biphenyls(as PCB) | | | |
| | 2-Chlorobiphenyl | CTL/SOP/SOIL/132-2014 | mg/kg | BDL(DL:0.01) |
| | 2,3-dichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,5,4'-Trichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-tetrachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,4',6'-Pentachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5',6'-Hexachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,4',6'-Heptachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,5,6,6'-Octachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PCB | | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd


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TEST REPORT

TEST REPORT NO: CTL/CH/N-3675/2016-17

DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|-------|--|-----------------------|-------|--------------|
| 11 | Poly Brominated Biphenyls(as PBB) | CTL/SOP/SOIL/139-2014 | mg/kg | BDL(DL:0.01) |
| | 2,3,3',4,4',5-Hexabromobiphenyl | | | |
| | 2,2',4,4',5,5'-Hexabromobiphenyl | | | |
| | 3,3',4,4'-Tetrabromobiphenyl | | | |
| | 3,3',4,4',5-Pentabromobiphenyl | | | |
| | Decabromobiphenyl | | | |
| | Sum of PBB | | | |
| 12 | Poly Bromo Diethyl Ether (as PBDE) | CTL/SOP/SOIL/147-2014 | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromobiphenylether | | | |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | | | |
| | 2,2',4,4',5-Pentabromodiphenylether | | | |
| | 2,2',4,4',6-Pentabromodiphenylether | | | |
| | 2,2',4,4'-Tetrabromodiphenylether | | | |
| | Sum of PBDE | | | |
| 13 | Polychlorinated Naphthalene | CTL/SOP/SOIL/151-2014 | mg/kg | BDL(DL:0.01) |
| 14 | Tributyltin | CTL/SOP/SOIL/158-2014 | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
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A. D. Jeyaraj
Authorised Signatory

Page 3 of 3

TEST REPORT

TEST REPORT NO: CTL/CH/N-3676/2016-17

DATE : 01.11.2016

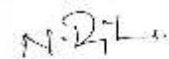
SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD


COMPANY NAME **M/s. Cholamandalam MS Risk Services Limited,**
 ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
 Chennai - 600 001.

SAMPLE DESCRIPTION Sediment (S7)
 PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
 SAMPLING LOCATION R.L.Kalathia Ship Breaking Pvt. Ltd. (19)
 GPS READING 21°23'27.39"N 72°10'35.08"E
 SAMPLE QUANTITY 1 Kg
 PACKING Received in Packed Condition
 SAMPLING DATE 16.08.2016
 SAMPLE RECEIVED ON 19.08.2016
 ANALYSIS STARTED ON 20.08.2016
 ANALYSIS COMPLETED ON 31.10.2016

| S.NO | PARAMETERS | METHOD | UNITS | RESULTS | |
|------|---|--|-------|-----------------|---------------|
| 1 | Moisture | IS 2720 (Part 2):1973 (R.2010) | % | 31.45 | |
| 2 | Total Organic Carbon | FAO Method (Pg. No.61) 2007 (walkley Black wet combustion method) | % | 0.40 | |
| 3 | Cadmium as Cd | EPA 3050B-1996 (Rev-2)/EPA 7130-1986 | mg/kg | 2.61 | |
| 4 | Hexavalent Chromium as Cr ⁶⁺ | EPA Method - 7196A:1992 (Rev-1) | mg/kg | BDL (DL:0.1) | |
| 5 | Lead as Pb | EPA 3050B-1996 (Rev-2)/EPA 7420-1986 | mg/kg | 211.93 | |
| 6 | Mercury as Hg | EPA 7471A-2007 (Rev-2) | mg/kg | BDL (DL:0.2) | |
| 7 | Methyl Mercury | CTL/SOP/SOIL/023 | mg/kg | BDL (DL:0.5) | |
| 8 | Particle Size Distribution: | | | Retained | Passed |
| | 1.7 mm | FAO Method | % | 2.35 | 97.65 |
| | 0.85 mm | | % | 2.10 | 95.55 |
| | 0.71 mm | | % | 2.00 | 93.55 |
| | 0.60 mm | | % | 1.95 | 91.6 |
| | 0.50 mm | | % | 8.12 | 83.48 |
| | 0.18 mm | | % | 14.56 | 68.92 |

BDL - Below Detection Limit; DL - Detection Limit


Verified by

For Chennai Testing Laboratory Pvt Ltd

Authorised Signatory

TEST REPORT

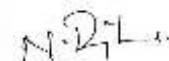
TEST REPORT NO: CTL/CH/N-3676/2016-17

DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------------------------|---|-----------------------|--------------|--------------|
| 9 | Poly Nuclear Aromatic Hydrocarbons(as PAH) | | | |
| | Naphthalene | CTL/SOP/SOIL/124-2014 | mg/kg | BDL(DL:0.01) |
| | Acenaphthylene | | mg/kg | 0.071 |
| | 2-Bromo-Naphthalene | | mg/kg | BDL(DL:0.02) |
| | Acenaphthene | | mg/kg | BDL(DL:0.02) |
| | Fluorene | | mg/kg | 0.063 |
| | Phenanthrene | | mg/kg | 0.074 |
| | Anthracene | | mg/kg | 0.112 |
| | Pyrene | | mg/kg | 0.052 |
| | Fluoranthene | | mg/kg | 0.214 |
| | Chrysene | | mg/kg | 0.087 |
| | Benz[a]anthracene | | mg/kg | BDL(DL:0.02) |
| | Benzo[a]pyrene | | mg/kg | BDL(DL:0.02) |
| | Benzo[b]fluoranthene | | mg/kg | BDL(DL:0.03) |
| | Benzo[ghi]perylene | | mg/kg | BDL(DL:0.03) |
| Dibenz[a,h]anthracene | mg/kg | | BDL(DL:0.03) | |
| Indeno[1,2,3-cd]pyrene | mg/kg | BDL(DL:0.04) | | |
| 10 | Poly Chlorinated Biphenyls(as PCB) | | | |
| | 2-Chlorobiphenyl | CTL/SOP/SOIL/132-2014 | mg/kg | BDL(DL:0.01) |
| | 2,3-dichlorobiphenyl | | mg/kg | 0.024 |
| | 2,5,4'-Trichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-tetrachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,4',6'-Pentachlorobiphenyl | | mg/kg | 0.017 |
| | 2,2',4,4',5',6'-Hexachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,4',6'-Heptachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,5,6,6'-Octachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PCB | | mg/kg | 0.041 |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd


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TEST REPORT

TEST REPORT NO: CTL/CH/N-3676/2016-17

DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|-------|--|-----------------------|-------|--------------|
| 11 | Poly Brominated Biphenyls(as PBB) | CTL/SOP/SOIL/139-2014 | | |
| | 2,3,3',4,4',5-Hexabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromobiphenyl | | mg/kg | 0.010 |
| | 3,3',4,4'-Tetrabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 3,3',4,4',5-Pentabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Decabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PBB | | mg/kg | 0.010 |
| 12 | Poly Bromo Diethyl Ether (as PBDE) | CTL/SOP/SOIL/147-2014 | | |
| | 2,2',4,4',5,5'-Hexabromobiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5-Pentabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',6-Pentabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-Tetrabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | Sum of PBDE | | mg/kg | BDL(DL:0.01) |
| 13 | Polychlorinated Naphthalene | CTL/SOP/SOIL/151-2014 | mg/kg | BDL(DL:0.01) |
| 14 | Tributyltin | CTL/SOP/SOIL/158-2014 | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
Verified by

A. D. Jeyaraj
Authorised Signatory

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TEST REPORT

TEST REPORT NO: CTL/CH/N-3677/2016-17

DATE : 01.11.2016

SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD

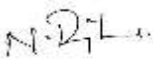
COMPANY NAME **M/s. Cholamandalam MS Risk Services Limited,**
ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
Chennai - 600 001.

SAMPLE DESCRIPTION Sediment (S8)
PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
SAMPLING LOCATION Shree Ram Vessels Scrap Pvt. Ltd. (78M)
GPS READING 21°22'53.53"N 72°11'11.94"E
SAMPLE QUANTITY 1 Kg
PACKING Received in Packed Condition
SAMPLING DATE 16.08.2016
SAMPLE RECEIVED ON 19.08.2016
ANALYSIS STARTED ON 20.08.2016
ANALYSIS COMPLETED ON 31.10.2016

| S.NO | PARAMETERS | METHOD | UNITS | RESULTS | |
|------|---|--|-------|-----------------|---------------|
| 1 | Moisture | IS 2720 (Part 2):1973 (R.2010) | % | 17.83 | |
| 2 | Total Organic Carbon | FAO Method (Pg. No.61) 2007 (walkley Black wet combustion method) | % | 0.45 | |
| 3 | Cadmium as Cd | EPA 3050B-1996 (Rev-2)/EPA 7130-1986 | mg/kg | 2.92 | |
| 4 | Hexavalent Chromium as Cr ⁶⁺ | EPA Method - 7196A:1992 (Rev-1) | mg/kg | BDL (DL:0.1) | |
| 5 | Lead as Pb | EPA 3050B-1996 (Rev-2)/EPA 7420-1986 | mg/kg | 410.11 | |
| 6 | Mercury as Hg | EPA 7471A-2007 (Rev-2) | mg/kg | BDL (DL:0.2) | |
| 7 | Methyl Mercury | CTL/SOP/SOIL/023 | mg/kg | BDL (DL:0.5) | |
| 8 | Particle Size Distribution: | | | Retained | Passed |
| | 1.7 mm | FAO Method | % | 2.89 | 97.11 |
| | 0.85 mm | | % | 2.10 | 95.01 |
| | 0.71 mm | | % | 1.56 | 93.45 |
| | 0.60 mm | | % | 2.36 | 91.09 |
| | 0.50 mm | | % | 5.11 | 85.98 |
| | 0.18 mm | | % | 15.89 | 70.09 |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd


Verified by


Authorised Signatory

TEST REPORT

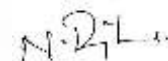
TEST REPORT NO: CTL/CH/N-3677/2016-17

DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------------------------|---|-----------------------|--------------|--------------|
| 9 | Poly Nuclear Aromatic Hydrocarbons(as PAH) | | | |
| | Naphthalene | CTL/SOP/SOIL/124-2014 | mg/kg | BDL(DL:0.01) |
| | Acenaphthylene | | mg/kg | 0.111 |
| | 2-Bromo-Naphthalene | | mg/kg | BDL(DL:0.02) |
| | Acenaphthene | | mg/kg | BDL(DL:0.02) |
| | Fluorene | | mg/kg | 0.112 |
| | Phenanthrene | | mg/kg | 0.147 |
| | Anthracene | | mg/kg | 0.187 |
| | Pyrene | | mg/kg | 0.073 |
| | Fluoranthene | | mg/kg | 1.03 |
| | Chrysene | | mg/kg | 0.38 |
| | Benz[a]anthracene | | mg/kg | BDL(DL:0.02) |
| | Benzo[a]pyrene | | mg/kg | BDL(DL:0.02) |
| | Benzo[b]fluoranthene | | mg/kg | BDL(DL:0.03) |
| | Benzo[ghi]perylene | | mg/kg | BDL(DL:0.03) |
| Dibenz[a,h]anthracene | mg/kg | | BDL(DL:0.03) | |
| Indeno[1,2,3-cd]pyrene | mg/kg | BDL(DL:0.04) | | |
| 10 | Poly Chlorinated Biphenyls(as PCB) | | | |
| | 2-Chlorobiphenyl | CTL/SOP/SOIL/132-2014 | mg/kg | BDL(DL:0.01) |
| | 2,3-dichlorobiphenyl | | mg/kg | 0.084 |
| | 2,5,4'-Trichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-tetrachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,4',6'-Pentachlorobiphenyl | | mg/kg | 0.012 |
| | 2,2',4,4',5',6'-Hexachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,4',6'-Heptachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,5,6,6'-Octachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PCB | | mg/kg | 0.096 |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd


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Authorised Signatory

TEST REPORT

TEST REPORT NO: CTL/CH/N-3677/2016-17

DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|-------|--|-----------------------|-----------------------|--------------|
| 11 | Poly Brominated Biphenyls(as PBB) | | | |
| | 2,3,3',4,4',5-Hexabromobiphenyl | CTL/SOP/SOIL/139-2014 | mg/kg | 0.016 |
| | 2,2',4,4',5,5'-Hexabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 3,3',4,4'-Tetrabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 3,3',4,4',5-Pentabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Decabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PBB | | mg/kg | 0.016 |
| 12 | Poly Bromo Diethyl Ether (as PBDE) | | | |
| | 2,2',4,4',5,5'-Hexabromobiphenylether | CTL/SOP/SOIL/147-2014 | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5-Pentabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',6-Pentabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-Tetrabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | Sum of PBDE | | mg/kg | BDL(DL:0.01) |
| 13 | Polychlorinated Naphthalene | | CTL/SOP/SOIL/151-2014 | mg/kg |
| 14 | Tributyltin | CTL/SOP/SOIL/158-2014 | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
Verified by

A. D. Jeyaraj
Authorised Signatory

Page 3 of 3

TEST REPORT

TEST REPORT NO: CTL/CH/N-3678/2016-17

DATE : 01.11.2016

SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD

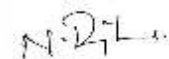
COMPANY NAME **M/s. Cholamandalam MS Risk Services Limited,**
ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
Chennai - 600 001.

SAMPLE DESCRIPTION Sediment (S9)
PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
SAMPLING LOCATION Mahavir Metal Corporation (84F)
GPS READING 21°22'32.98"N 72°10'05.01"E
SAMPLE QUANTITY 1 Kg
PACKING Received in Packed Condition
SAMPLING DATE 16.08.2016
SAMPLE RECEIVED ON 19.08.2016
ANALYSIS STARTED ON 20.08.2016
ANALYSIS COMPLETED ON 31.10.2016

| S.NO | PARAMETERS | METHOD | UNITS | RESULTS | |
|------|---|--|-------|-----------------|---------------|
| 1 | Moisture | IS 2720 (Part 2):1973 (R.2010) | % | 20.66 | |
| 2 | Total Organic Carbon | FAO Method (Pg. No.61) 2007 (walkley Black wet combustion method) | % | 0.84 | |
| 3 | Cadmium as Cd | EPA 3050B-1996 (Rev-2)/EPA 7130-1986 | mg/kg | 2.78 | |
| 4 | Hexavalent Chromium as Cr ⁶⁺ | EPA Method - 7196A:1992 (Rev-1) | mg/kg | BDL (DL:0.1) | |
| 5 | Lead as Pb | EPA 3050B-1996 (Rev-2)/EPA 7420-1986 | mg/kg | 248.14 | |
| 6 | Mercury as Hg | EPA 7471A-2007 (Rev-2) | mg/kg | BDL (DL:0.2) | |
| 7 | Methyl Mercury | CTL/SOP/SOIL/023 | mg/kg | BDL (DL:0.5) | |
| 8 | Particle Size Distribution: | FAO Method | % | Retained | Passed |
| | 1.7 mm | | | 2.33 | 97.67 |
| | 0.85 mm | | | 2.47 | 95.2 |
| | 0.71 mm | | | 1.82 | 93.38 |
| | 0.60 mm | | | 3.25 | 90.13 |
| | 0.50 mm | | | 7.85 | 82.28 |
| | 0.18 mm | | | 16.34 | 65.94 |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd


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Authorised Signatory

TEST REPORT

TEST REPORT NO: CTL/CH/N-3678/2016-17

DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------------------------|---|-----------------------|--------------|--------------|
| 9 | Poly Nuclear Aromatic Hydrocarbons(as PAH) | | | |
| | Naphthalene | CTL/SOP/SOIL/124-2014 | mg/kg | BDL(DL:0.01) |
| | Acenaphthylene | | mg/kg | 0.051 |
| | 2-Bromo-Naphthalene | | mg/kg | BDL(DL:0.02) |
| | Acenaphthene | | mg/kg | BDL(DL:0.02) |
| | Fluorene | | mg/kg | 0.136 |
| | Phenanthrene | | mg/kg | 0.081 |
| | Anthracene | | mg/kg | 0.042 |
| | Pyrene | | mg/kg | 0.023 |
| | Fluoranthene | | mg/kg | 0.321 |
| | Chrysene | | mg/kg | 0.145 |
| | Benz[a]anthracene | | mg/kg | BDL(DL:0.02) |
| | Benzo[a]pyrene | | mg/kg | BDL(DL:0.02) |
| | Benzo[b]fluoranthene | | mg/kg | BDL(DL:0.03) |
| | Benzo[ghi]perylene | | mg/kg | BDL(DL:0.03) |
| Dibenz[a,h]anthracene | mg/kg | | BDL(DL:0.03) | |
| Indeno[1,2,3-cd]pyrene | mg/kg | BDL(DL:0.04) | | |
| 10 | Poly Chlorinated Biphenyls(as PCB) | | | |
| | 2-Chlorobiphenyl | CTL/SOP/SOIL/132-2014 | mg/kg | BDL(DL:0.01) |
| | 2,3-dichlorobiphenyl | | mg/kg | 0.032 |
| | 2,5,4'-Trichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-tetrachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,4',6'-Pentachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5',6'-Hexachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,4',6'-Heptachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,5,6,6'-Octachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PCB | | mg/kg | 0.032 |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
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A. Srinivasan
Authorised Signatory

Page 2 of 3

TEST REPORT

TEST REPORT NO: CTL/CH/N-3678/2016-17

DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|-------|--|-----------------------|-------|--------------|
| 11 | Poly Brominated Biphenyls(as PBB) | CTL/SOP/SOIL/139-2014 | | |
| | 2,3,3',4,4',5-Hexabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 3,3',4,4'-Tetrabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 3,3',4,4',5-Pentabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Decabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PBB | | mg/kg | BDL(DL:0.01) |
| 12 | Poly Bromo Diethyl Ether (as PBDE) | CTL/SOP/SOIL/147-2014 | | |
| | 2,2',4,4',5,5'-Hexabromobiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5-Pentabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',6-Pentabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-Tetrabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | Sum of PBDE | | mg/kg | BDL(DL:0.01) |
| 13 | Polychlorinated Naphthalene | CTL/SOP/SOIL/151-2014 | mg/kg | BDL(DL:0.01) |
| 14 | Tributyltin | CTL/SOP/SOIL/158-2014 | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
Verified by

A. D. Jeyaraj
Authorised Signatory

Page 3 of 3

TEST REPORT

TEST REPORT NO: CTL/CH/N-3679/2016-17

DATE : 01.11.2016

SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD

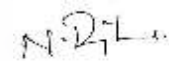
COMPANY NAME **M/s. Cholamandalam MS Risk Services Limited,**
ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
Chennai - 600 001.

SAMPLE DESCRIPTION Sediment (S10)
PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
SAMPLING LOCATION Alang Area
GPS READING 21°22'26.16"N 72°09'55.74"E
SAMPLE QUANTITY 1 Kg
PACKING Received in Packed Condition
SAMPLING DATE 16.08.2016
SAMPLE RECEIVED ON 19.08.2016
ANALYSIS STARTED ON 20.08.2016
ANALYSIS COMPLETED ON 31.10.2016

| S.NO | PARAMETERS | METHOD | UNITS | RESULTS | |
|------|---|--|-------|-----------------|---------------|
| 1 | Moisture | IS 2720 (Part 2):1973 (R.2010) | % | 33.54 | |
| 2 | Total Organic Carbon | FAO Method (Pg. No.61) 2007 (walkley Black wet combustion method) | % | 0.95 | |
| 3 | Cadmium as Cd | EPA 3050B-1996 (Rev-2)/EPA 7130-1986 | mg/kg | 2.85 | |
| 4 | Hexavalent Chromium as Cr ⁶⁺ | EPA Method - 7196A:1992 (Rev-1) | mg/kg | BDL (DL:0.1) | |
| 5 | Lead as Pb | EPA 3050B-1996 (Rev-2)/EPA 7420-1986 | mg/kg | 115.82 | |
| 6 | Mercury as Hg | EPA 7471A-2007 (Rev-2) | mg/kg | BDL (DL:0.2) | |
| 7 | Methyl Mercury | CTL/SOP/SOIL/023 | mg/kg | BDL (DL:0.5) | |
| 8 | Particle Size Distribution: | FAO Method | % | Retained | Passed |
| | 1.7 mm | | | 1.58 | 98.42 |
| | 0.85 mm | | | 3.55 | 94.87 |
| | 0.71 mm | | | 2.14 | 92.73 |
| | 0.60 mm | | | 1.66 | 91.07 |
| | 0.50 mm | | | 4.50 | 86.57 |
| | 0.18 mm | | | 17.56 | 69.01 |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd


Verified by


Authorised Signatory

TEST REPORT

TEST REPORT NO: CTL/CH/N-3679/2016-17

DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------------------------|---|-----------------------|--------------|--------------|
| 9 | Poly Nuclear Aromatic Hydrocarbons(as PAH) | | | |
| | Naphthalene | CTL/SOP/SOIL/124-2014 | mg/kg | BDL(DL:0.01) |
| | Acenaphthylene | | mg/kg | 0.038 |
| | 2-Bromo-Naphthalene | | mg/kg | BDL(DL:0.02) |
| | Acenaphthene | | mg/kg | BDL(DL:0.02) |
| | Fluorene | | mg/kg | 0.052 |
| | Phenanthrene | | mg/kg | 0.033 |
| | Anthracene | | mg/kg | 0.024 |
| | Pyrene | | mg/kg | 0.057 |
| | Fluoranthene | | mg/kg | 0.128 |
| | Chrysene | | mg/kg | 0.106 |
| | Benz[a]anthracene | | mg/kg | BDL(DL:0.02) |
| | Benzo[a]pyrene | | mg/kg | BDL(DL:0.02) |
| | Benzo[b]fluoranthene | | mg/kg | BDL(DL:0.03) |
| | Benzo[ghi]perylene | | mg/kg | BDL(DL:0.03) |
| Dibenz[a,h]anthracene | mg/kg | | BDL(DL:0.03) | |
| Indeno[1,2,3-cd]pyrene | mg/kg | BDL(DL:0.04) | | |
| 10 | Poly Chlorinated Biphenyls(as PCB) | | | |
| | 2-Chlorobiphenyl | CTL/SOP/SOIL/132-2014 | mg/kg | 0.013 |
| | 2,3-dichlorobiphenyl | | mg/kg | 0.027 |
| | 2,5,4'-Trichlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-tetrachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,4',6'-Pentachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5',6'-Hexachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,4',6'-Heptachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 2,2',3,3',4,5,6,6'-Octachlorobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PCB | | mg/kg | 0.040 |

BDL - Below Detection Limit; DL - Detection Limit

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
Verified by

A. Srinivasan
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Page 2 of 3

TEST REPORT

TEST REPORT NO: CTL/CH/N-3679/2016-17

DATE : 01.11.2016

| S. NO | PARAMETERS | METHOD | UNITS | RESULTS |
|-------|--|-----------------------|-----------------------|--------------|
| 11 | Poly Brominated Biphenyls(as PBB) | | | |
| | 2,3,3',4,4',5-Hexabromobiphenyl | CTL/SOP/SOIL/139-2014 | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 3,3',4,4'-Tetrabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | 3,3',4,4',5-Pentabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Decabromobiphenyl | | mg/kg | BDL(DL:0.01) |
| | Sum of PBB | | mg/kg | BDL(DL:0.01) |
| 12 | Poly Bromo Diethyl Ether (as PBDE) | | | |
| | 2,2',4,4',5,5'-Hexabromobiphenylether | CTL/SOP/SOIL/147-2014 | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5,5'-Hexabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',5-Pentabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4',6-Pentabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | 2,2',4,4'-Tetrabromodiphenylether | | mg/kg | BDL(DL:0.01) |
| | Sum of PBDE | | mg/kg | BDL(DL:0.01) |
| 13 | Polychlorinated Naphthalene | | CTL/SOP/SOIL/151-2014 | mg/kg |
| 14 | Tributyltin | CTL/SOP/SOIL/158-2014 | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

END OF REPORT

For Chennai Testing Laboratory Pvt Ltd

N. D. L.
Verified by

A. D. Jeyaraj
Authorised Signatory

Page 3 of 3

TEST REPORT

TEST REPORT NO: CTL/CH/N-3670/2016-17

DATE : 01.11.2016

SAMPLE DRAWN BY CHENNAI TESTING LABORATORY PVT LTD

COMPANY NAME **M/s. Cholamandalam MS Risk Services Limited,**
 ADDRESS 'Parry House', 3rd Floor, No:2 NSC Bose Road,
 Chennai - 600 001.

SAMPLE DESCRIPTION Crab shell for Bioaccumulation study (Tributyltin study)
 PROJECT AT Alang Shipyard Improvement Project, Alang, Bhavnagar District, Gujarat
 SAMPLING LOCATION Alang Area
 GPS READING 21°22'26.16"N 72°09'55.74"E
 SAMPLE QUANTITY 1 no

| S.NO | PARAMETERS | METHOD | UNITS | RESULTS |
|------|-------------------|-----------------------|-------|--------------|
| 1 | Tributyltin Level | CTL/SOP/FOOD/298-2015 | mg/kg | BDL(DL:0.01) |

BDL - Below Detection Limit; DL - Detection Limit

*****END OF REPORT*****

For Chennai Testing Laboratory Pvt Ltd

N.D.L.
Verified by

A. Dayaraj
Authorised Signatory

Page 1 of 1

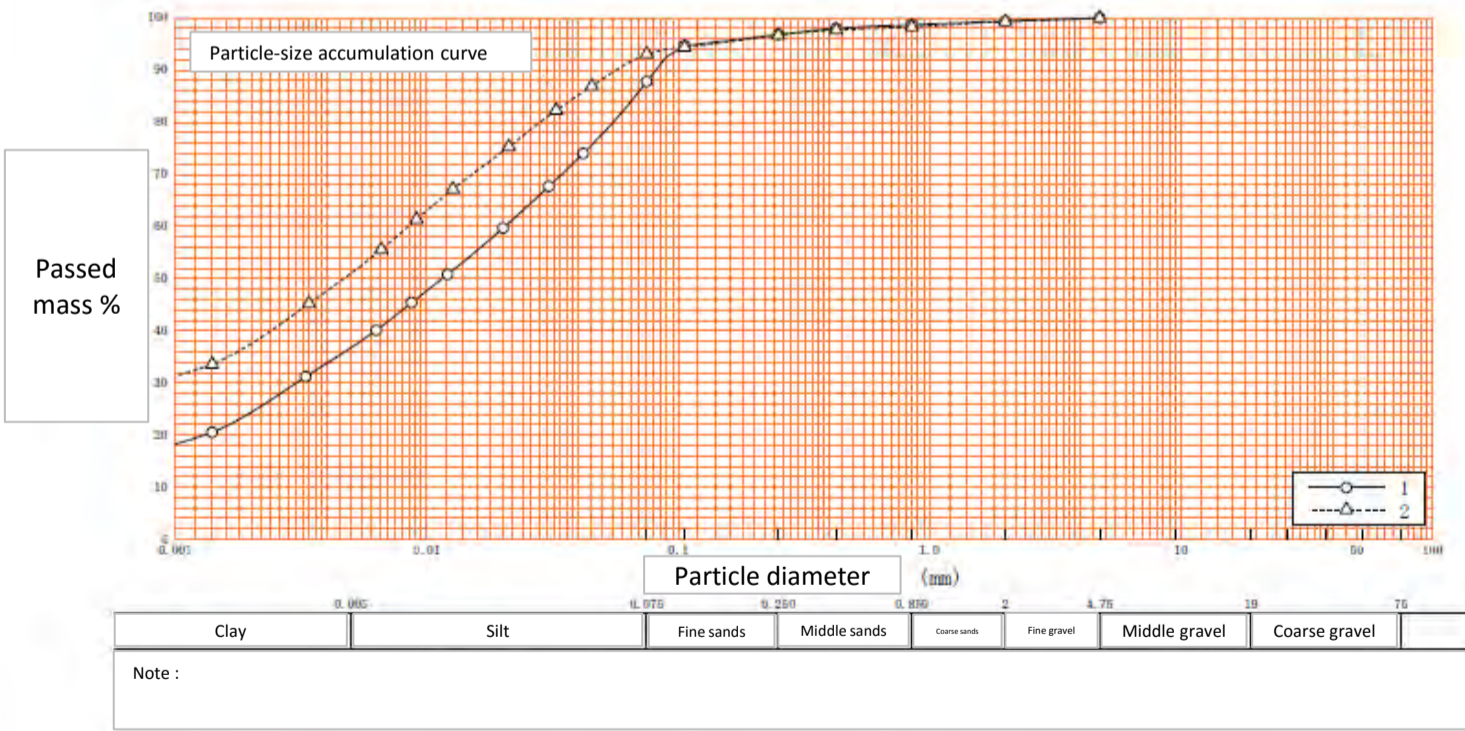
Appendix 10 Results of the particle size analysis

| | |
|------------------------|-----------------------------------|
| JIS A 1204 JGS 0131 | Particle size distribution |
|------------------------|-----------------------------------|

| | |
|---|----------------------------|
| Titul : Preparations Research of Shipyard Recycle Improvement | Analysis date : March 2017 |
|---|----------------------------|

IDEA Consultants, Inc.

| Sample No. | 1 | | 2 | | Sample No. | 1 | | 2 | |
|------------------------|----------|--------|---------------|--------------------------------|---------------------------------|-------------------|---------------------|-----------|--|
| Sieve | Particle | Passed | Particle size | Passed | Coarse gravel | % | * | * | |
| | 75 | | 75 | | Middle gravel | % | * | * | |
| | 53 | | 53 | | Fine gravel | % | 0.6 | 0.7 | |
| | 37.5 | | 37.5 | | Coarse sands | % | 0.7 | 1.0 | |
| | 26.5 | | 26.5 | | Middle sands | % | 1.9 | 1.6 | |
| | 19 | | 19 | | Fine sands | % | 9.0 | 3.6 | |
| | 9.5 | | 9.5 | | Silt | % | 51.1 | 42.1 | |
| | 4.75 | 100.0 | 4.75 | 100.0 | Clay | % | 36.7 | 51.0 | |
| | 2 | 99.4 | 2 | 99.3 | Passed 2mm sieve | % | 99.4 | 99.3 | |
| | 0.850 | 98.7 | 0.850 | 98.3 | Passed 0.425mm sieve | % | 98.0 | 97.7 | |
| | 0.425 | 98.0 | 0.425 | 97.7 | Passed 0.075mm sieve | % | 87.8 | 93.1 | |
| | 0.250 | 96.8 | 0.250 | 96.7 | Maximum particle diameter | mm | 4.75 | 4.75 | |
| | 0.106 | 94.7 | 0.106 | 94.4 | 60% particle diameter D_{60} | mm | 0.0204 | 0.0085 | |
| 0.075 | 87.8 | 0.075 | 93.1 | 50% particle diameter D_{50} | mm | 0.0116 | 0.0047 | | |
| sedimentation analysis | 0.0419 | 74.0 | 0.0453 | 86.9 | 30% particle diameter D_{30} | mm | 0.0030 | * | |
| | 0.0306 | 67.7 | 0.0327 | 82.3 | 10% particle diameter D_{10} | mm | * | * | |
| | 0.0201 | 59.7 | 0.0212 | 75.3 | Uniformity coefficient U_c | | * | * | |
| | 0.0121 | 50.8 | 0.0127 | 67.2 | Coefficient of curvature U_c' | | * | * | |
| | 0.0087 | 45.4 | 0.0091 | 61.4 | Density ρ_s | g/cm ³ | 2.629 | 2.619 | |
| | 0.0063 | 40.1 | 0.0066 | 55.6 | Dispersant Concentration, Volum | | Metaphosphoric acid | | |
| | 0.0033 | 31.2 | 0.0034 | 45.2 | | | 20%, 10ml | 20%, 10ml | |
| | 0.0014 | 20.5 | 0.0014 | 33.6 | 20% particle diameter D_{20} | mm | 0.0013 | * | |

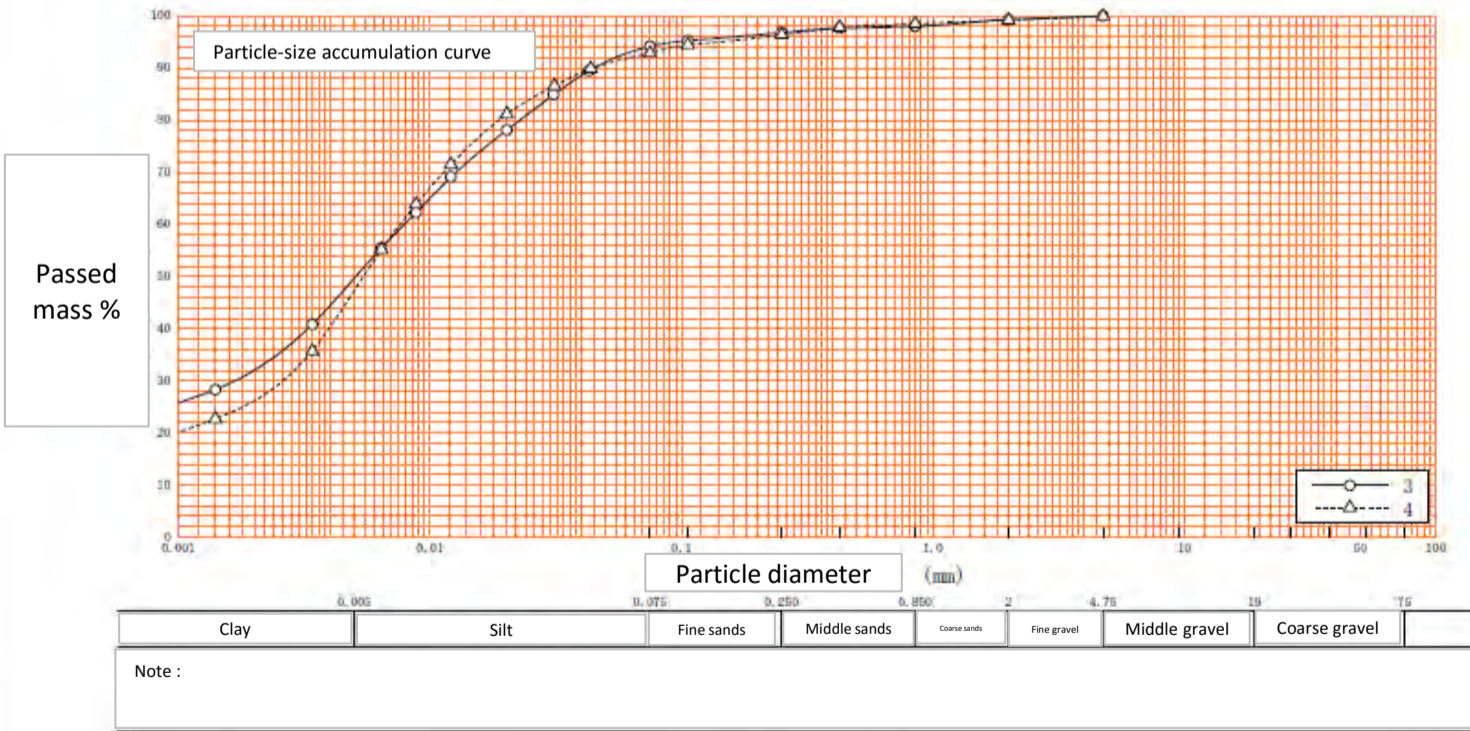


| | |
|------------------------|-----------------------------------|
| JIS A 1204 JGS 0131 | Particle size distribution |
|------------------------|-----------------------------------|

| | |
|---|----------------------------|
| Titul : Preparations Research of Shipyard Recycle Improvement | Analysis date : March 2017 |
|---|----------------------------|

| |
|------------------------|
| IDEA Consultants, Inc. |
|------------------------|

| Sample No. | 3 | | 4 | | Sample No. | 3 | 4 | |
|-------------------------------|----------|--------|----------|--------|-------------------------------------|-------------------|---------------------|------------|
| Sieve | Particle | Passed | Particle | Passed | Coarse gravel | % | * | * |
| | 75 | | 75 | | Middle gravel | % | * | * |
| | 53 | | 53 | | Fine gravel | % | 0.7 | 0.8 |
| | 37.5 | | 37.5 | | Coarse sands | % | 1.3 | 0.7 |
| | 26.5 | | 26.5 | | Middle sands | % | 1.2 | 2.1 |
| | 19 | | 19 | | Fine sands | % | 2.6 | 3.5 |
| | 9.5 | | 9.5 | | Silt | % | 44.6 | 45.6 |
| | 4.75 | 100.0 | 4.75 | 100.0 | Clay | % | 49.6 | 47.3 |
| | 2 | 99.3 | 2 | 99.2 | Passed 2mm sieve | % | 99.3 | 99.2 |
| | 0.850 | 98.0 | 0.850 | 98.5 | Passed 0.425mm sieve | % | 97.6 | 97.8 |
| | 0.425 | 97.6 | 0.425 | 97.8 | Passed 0.075mm sieve | % | 94.2 | 92.9 |
| | 0.250 | 96.8 | 0.250 | 96.4 | Maximum particle diameter | mm | 4.75 | 4.75 |
| | 0.106 | 95.3 | 0.106 | 94.5 | 60% particle diameter D_{60} | mm | 0.0079 | 0.0076 |
| | 0.075 | 94.2 | 0.075 | 92.9 | 50% particle diameter D_{50} | mm | 0.0051 | 0.0054 |
| sediment ation analysis | 0.0428 | 89.5 | 0.0435 | 89.9 | 30% particle diameter D_{30} | mm | 0.0017 | 0.0026 |
| | 0.0310 | 84.9 | 0.0312 | 86.6 | 10% particle diameter D_{10} | mm | * | * |
| | 0.0202 | 78.1 | 0.0202 | 81.2 | Uniformity coefficient U_c | | * | * |
| | 0.0121 | 69.1 | 0.0121 | 71.5 | Coefficient of curvature U_c' | | * | * |
| | 0.0088 | 62.3 | 0.0088 | 63.9 | Density ρ_s | g/cm ³ | 2.638 | 2.623 |
| | 0.0064 | 55.5 | 0.0064 | 55.2 | Dispersant Concentration , Volum | | Metaphosphoric acid | |
| | 0.0034 | 40.8 | 0.0034 | 35.7 | | | 20% , 10ml | 20% , 10ml |
| | 0.0014 | 28.3 | 0.0014 | 22.7 | 20% particle diameter D_{20} | mm | * | * |



JIS A 1204
JGS 0131

Particle size distribution

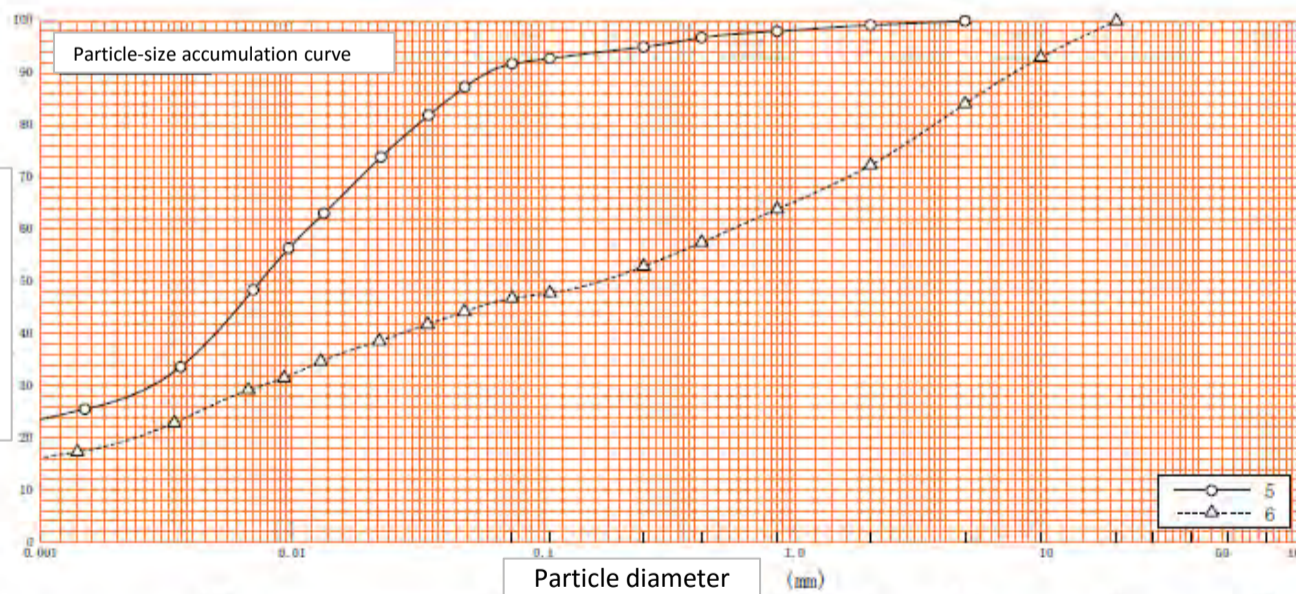
Titel : Preparations Research of Shipyard Recycle Improvement

Analysis date : March 2017

IDEA Consultants, Inc.

| Sample No. | 5 | | 6 | | Sample No. | 5 | 6 | |
|------------------------|----------|--------|----------|--------|---------------------------------|-------------------|----------------------------------|--------|
| Sieve | Particle | Passed | Particle | Passed | Coarse gravel | % | * | * |
| | 75 | | 75 | | Middle gravel | % | * | 15.9 |
| | 53 | | 53 | | Fine gravel | % | 0.8 | 11.8 |
| | 37.5 | | 37.5 | | Coarse sands | % | 1.2 | 8.4 |
| | 26.5 | | 26.5 | | Middle sands | % | 3.0 | 11.0 |
| | 19 | | 19 | 100.0 | Fine sands | % | 3.2 | 6.1 |
| | 9.5 | | 9.5 | 93.0 | Silt | % | 51.6 | 20.2 |
| | 4.75 | 100.0 | 4.75 | 84.1 | Clay | % | 40.2 | 26.6 |
| | 2 | 99.2 | 2 | 72.3 | Passed 2mm sieve | % | 99.2 | 72.3 |
| | 0.850 | 98.0 | 0.850 | 63.9 | Passed 0.425mm sieve | % | 96.8 | 57.5 |
| | 0.425 | 96.8 | 0.425 | 57.5 | Passed 0.075mm sieve | % | 91.8 | 46.8 |
| | 0.250 | 95.0 | 0.250 | 52.9 | Maximum particle diameter | mm | 4.75 | 19 |
| | 0.106 | 92.8 | 0.106 | 47.8 | 60% particle diameter D_{60} | mm | 0.0115 | 0.5585 |
| | 0.075 | 91.8 | 0.075 | 46.8 | 50% particle diameter D_{50} | mm | 0.0075 | 0.1685 |
| sedimentation analysis | 0.0486 | 87.3 | 0.0484 | 44.2 | 30% particle diameter D_{30} | mm | 0.0028 | 0.0075 |
| | 0.0349 | 81.9 | 0.0346 | 41.8 | 10% particle diameter D_{10} | mm | * | * |
| | 0.0226 | 73.9 | 0.0222 | 38.6 | Uniformity coefficient U_c | | * | * |
| | 0.0134 | 63.1 | 0.0130 | 34.7 | Coefficient of curvature U_c' | | * | * |
| | 0.0097 | 56.4 | 0.0093 | 31.5 | Density ρ_s | g/cm ³ | 2.615 | 2.661 |
| | 0.0070 | 48.4 | 0.0067 | 29.2 | Dispersant Concentration, Volum | | Metaphosphoric acid 20%, 10ml | |
| | 0.0036 | 33.6 | 0.0034 | 22.9 | 20% particle diameter D_{20} | mm | * | 0.0024 |
| | 0.0015 | 25.5 | 0.0014 | 17.3 | | | | |

Passed mass %



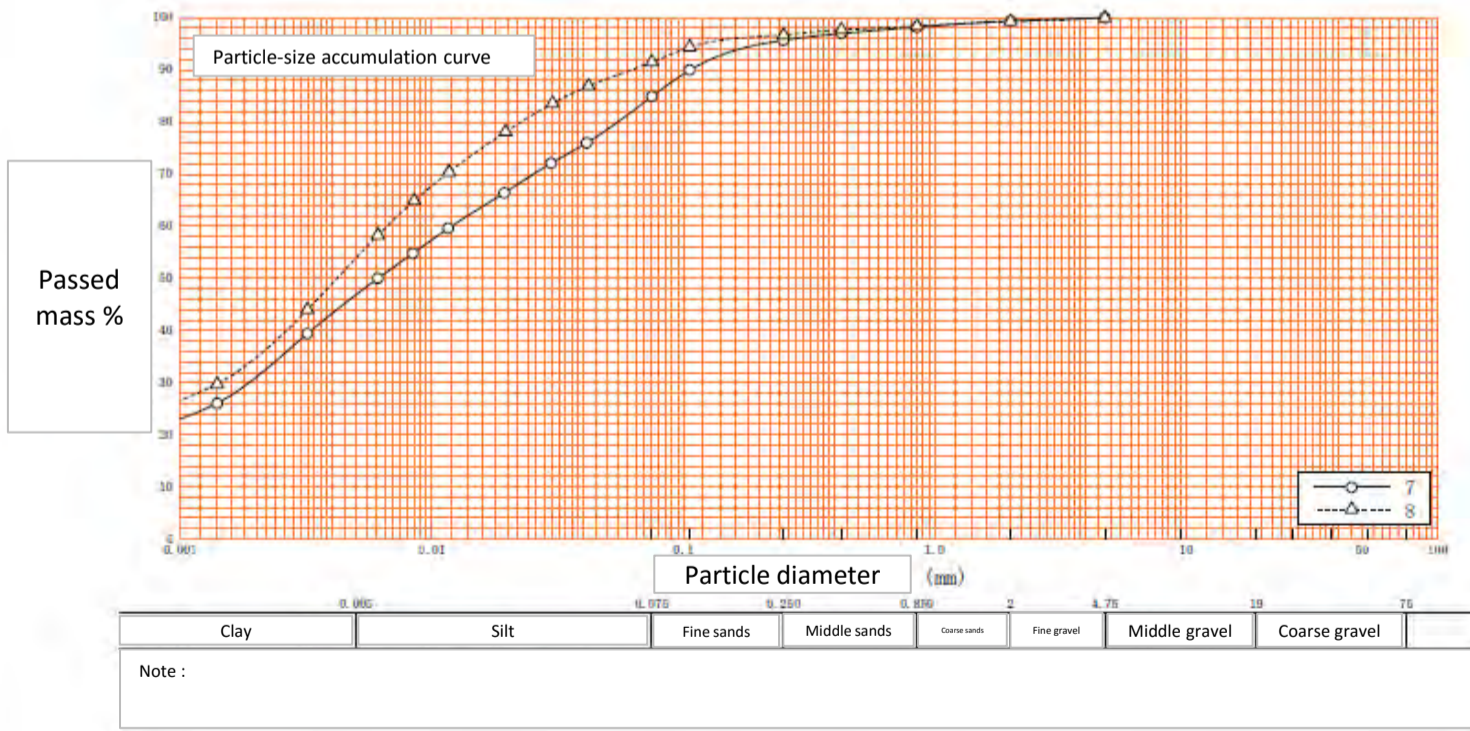
| | | | | | | | |
|--------|------|------------|--------------|--------------|-------------|---------------|---------------|
| Clay | Silt | Fine sands | Middle sands | Coarse sands | Fine gravel | Middle gravel | Coarse gravel |
| Note : | | | | | | | |

| | |
|------------------------|-----------------------------------|
| JIS A 1204 JGS 0131 | Particle size distribution |
|------------------------|-----------------------------------|

| | |
|---|----------------------------|
| Titel : Preparations Research of Shipyard Recycle Improvement | Analysis date : March 2017 |
|---|----------------------------|

IDEA Consultants, Inc.

| Sample No. | 7 | | 8 | | Sample No. | 7 | 8 | |
|------------------------|----------|--------|----------|--------|---------------------------------|-------------------|---------------------|-----------|
| Sieve | Particle | Passed | Particle | Passed | Coarse gravel | % | * | * |
| | 75 | | 75 | | Middle gravel | % | * | * |
| | 53 | | 53 | | Fine gravel | % | 0.6 | 0.7 |
| | 37.5 | | 37.5 | | Coarse sands | % | 1.2 | 0.9 |
| | 26.5 | | 26.5 | | Middle sands | % | 2.5 | 1.7 |
| | 19 | | 19 | | Fine sands | % | 10.8 | 5.2 |
| | 9.5 | | 9.5 | | Silt | % | 38.0 | 37.6 |
| | 4.75 | 100.0 | 4.75 | 100.0 | Clay | % | 46.9 | 53.9 |
| | 2 | 99.4 | 2 | 99.3 | Passed 2mm sieve | % | 99.4 | 99.3 |
| | 0.850 | 98.2 | 0.850 | 98.4 | Passed 0.425mm sieve | % | 97.0 | 97.7 |
| | 0.425 | 97.0 | 0.425 | 97.7 | Passed 0.075mm sieve | % | 84.9 | 91.5 |
| | 0.250 | 95.7 | 0.250 | 96.7 | Maximum particle diameter | mm | 4.75 | 4.75 |
| | 0.106 | 90.0 | 0.106 | 94.4 | 60% particle diameter D_{60} | mm | 0.0120 | 0.0066 |
| | 0.075 | 84.9 | 0.075 | 91.5 | 50% particle diameter D_{50} | mm | 0.0061 | 0.0042 |
| sedimentation analysis | 0.0413 | 76.0 | 0.0420 | 86.9 | 30% particle diameter D_{30} | mm | 0.0019 | 0.0014 |
| | 0.0298 | 72.1 | 0.0302 | 83.6 | 10% particle diameter D_{10} | mm | * | * |
| | 0.0194 | 66.4 | 0.0196 | 78.1 | Uniformity coefficient U_c | | * | * |
| | 0.0116 | 59.6 | 0.0117 | 70.4 | Coefficient of curvature U_c' | | * | * |
| | 0.0084 | 54.8 | 0.0085 | 64.9 | Density ρ_s | g/cm ³ | 2.632 | 2.621 |
| | 0.0061 | 50.0 | 0.0061 | 58.3 | Dispersant Concentration, Volum | | Metaphosphoric acid | |
| | 0.0032 | 39.4 | 0.0032 | 44.0 | | | 20%, 10ml | 20%, 10ml |
| | 0.0014 | 26.0 | 0.0014 | 29.7 | 20% particle diameter D_{20} | mm | * | * |



Appendix 11 Environment Monitoring Form

Environmental Monitoring Form

YYYY/MM/DD

1. Basic information of this Environmental Monitoring Form

| | |
|----------------------|---|
| Project Name | Ship Recycling Yard Improvement Project |
| Country/Place | India, Gujarat |
| Implementation Phase | [Construction phase / Operation phase] |
| Reporting Period | From YYYY/MM to YYYY/MM |

2. Construction phase

(1) Air quality

1) Pollution Under Control Certificate of construction vehicles

| Month | Method | Inspection/monitoring results | | Action taken* |
|-------|--|-------------------------------|--|---------------|
| | | No. of inspected vehicles | No. and type of vehicles without valid Pollution Under Control Certificate | |
| | Random inspection of construction vehicles | | | |

*: Describe actions taken in case of non-compliance.

2) Exhaust gas emission from construction vehicles/machines

| Month | Method | Inspection/monitoring results ^{*1} | Action taken ^{*2} |
|-------|--|---|----------------------------|
| | Visual inspection of exhaust fumes of construction vehicles/machines | | |

*1: Describe the no. and type of vehicles/machines identified emitting excessive pollutants (e.g. black soot).

*2: Describe actions taken in case of excessive emission of pollutants.

3) Fugitive dust emission from construction sites

| Month | Method | Inspection/monitoring results ^{*1} | Action taken ^{*2} |
|-------|---|---|----------------------------|
| | Visual inspection of fugitive dust emission from construction sites | | |

*1: Describe the location of sites identified emitting excessive dust

*2: Describe actions taken in case of excessive dust emission.

(2) Water quality

1) Water pollution control of concrete batching plant

| Month | Method | Inspection/monitoring results ^{*1} | Action taken ^{*2} |
|-------|---|---|----------------------------|
| | Visual inspection of washwater treatment facilities | | |

*1: Describe whether washwater and treatment facilities (e.g. settling pond) are managed appropriately.

*2: Describe actions taken in case of inappropriate management of washwater.

2) Water quality of concrete washwater effluent (in case of discharge)

| Sampling date | Method | Results (pH) | Indian standard* |
|---------------|---------------------------|--------------|------------------|
| | Measurement with pH meter | | 6.0-9.0 |

*: Effluent quality standards for common effluent treatment plant set under Environment (Protection) Amendment Rules 2015

(3) Soil quality

1) Oil leaks from construction vehicles/machines

| Month | Method | Inspection/monitoring results | | Action taken* |
|-------|---|---|--|---------------|
| | | No. and type of inspected vehicles/machines | No. and type of vehicles/machines with oil leaks | |
| | Visual inspection of construction vehicles/machines | | | |

*: Describe actions taken in case of oil leaks.

(4) Noise from construction vehicles

| Month | Method | Location | Results (LAeq) | | Indian standard* ¹ | Reference standard* ² | Action taken* ³ |
|-------|------------------------------|----------|----------------|-------|-------------------------------|----------------------------------|----------------------------|
| | | | Day | Night | | | |
| | Measurement with noise meter | St.1 | | | Day: 55 dBA Night: 45 dBA | Day: 55 dBA Night: 45 dBA | |
| | | St.2 | | | | | |
| | | St.3 | | | | | |
| | | St.4 | | | | | |
| | | St.5 | | | | | |

*1: Noise Pollution (Regulation and Control) Rules 2000 (Residential area)

*2: Guidelines for Community Noise, World Health Organization (WHO), 1999

*3: Describe actions taken in case of exceedance of standard.

(5) Construction waste management

| Month | Method | Inspection/monitoring results | | | | Action taken ^{*2} | |
|-------|---|---------------------------------------|----------|---|--|----------------------------|---|
| | | Type and quantity of wastes generated | | Method and quantity for reuse/recycling | Method and quantity for final disposal | | Issues identified through visual inspection |
| | | Type | Quantity | | | | |
| | Confirmation of waste management record and visual inspection | | | | | | |

*1: Describe actions taken in case incidents of inappropriate waste management.

(6) HIV/AIDS

| Method | Inspection/monitoring results | | | Action taken* |
|--|---------------------------------------|---|--------------------------------------|---------------|
| | No. of workers that had health checks | No. of workers participated in awareness programs | Issues identified through inspection | |
| Confirmation of records of HIV/AIDS prevention plan and interviews | | | | |

*: Describe actions taken in case of any issues.

(7) Occupational safety

| Month | Method | Inspection/monitoring results | | | Action taken* |
|-------|---|---|------------------------|--------------------------------------|---------------|
| | | Date and type of occupational accidents | No. and type of injury | Issues identified through inspection | |
| | Confirmation of records of occupational accidents and visual inspection | | | | |

*: Describe actions taken in case of any issues.

(8) Other

1) Update regarding improvement of workers' living condition*

| Date | Update regarding improvement of worker's living condition |
|------|---|
| | <i>Please describe any activities done/planned by GMB or other related organizations to improve worker's living condition</i> |

* Background of this monitoring parameter: Improvement of workers' living condition is not covered by the Project and not written on the Environmental Monitoring Plan. However, the JICA Advisory Committee for Environmental and Social Considerations required JICA to monitor this point.

3. Operation phase

(1) Air quality

1) Emission gas from new TSDF incinerator

- Monitoring reason: Required by EC of this Project and CPCB guideline
- Monitoring status: Inspection implemented by GPCB with existing TSDF incinerator
- Requirement of technical assistance from JICA: Analysis of PCBs

| Sampling date | Parameters | Results | Indian standard*1 | Reference standard | Action taken*4 | Note |
|---------------|---|---------|---------------------------|------------------------------|----------------|---|
| | PM | | 50 mg/Nm ³ | 10 mg/m ^{3*3} | | Parameters based on CPCB guideline Dioxins/furans required by EC of this Project |
| | HCL | | 50 mg/Nm ³ | 10 mg/m ^{3*3} | | |
| | SO ₂ | | 200 mg/Nm ³ | 50 mg/m ^{3*3} | | |
| | CO | | 100 mg/Nm ³ | 50-150 mg/m ^{3*3} | | |
| | TOC | | 20 mg/Nm ³ | N/A | | |
| | HF | | 4 mg/Nm ³ | 1 mg/m ^{3*3} | | |
| | NOx | | 400 mg/Nm ³ | 200-400 mg/m ^{3*3} | | |
| | Dioxins/furans | | 0.1 ngTEQ/Nm ³ | 0.1 ngTEQ/Nm ^{3*3} | | |
| | Cd + Th and their compounds | | 0.05 mg/Nm ³ | N/A | | |
| | Hg | | 0.05 mg/Nm ³ | 0.05-0.1 mg/m ^{3*3} | | |
| | Sb + As + Pb + Co + Cr + Cu + Mn + Ni + V and their compounds | | 0.50 mg/Nm ³ | N/A | | |
| | PCBs | | - | 0.15 mg/m ^{3*2} | | Additional parameter proposed by JICA Study Team but may require technical assistance for analysis. |

N/A: Not available

*1: Environment (Protection) Rules 1986: Common Hazardous Waste Incinerator

*2: Interim emission standard for PCB incineration, Ministry of Environment, Japan

*3: EU Directive 2000/76/EC (applicable to MSW and Hazardous Waste Incinerators). To be referred as benchmark standard as appropriate.

*4: Describe actions taken in case of exceedance of standard.

2) Emission gas from existing TSDF incinerator

- Monitoring reason: Required by EC of the existing TSDF incinerator and CPCB guideline
- Monitoring status: Inspection implemented by GPCB
- Requirement of technical assistance from JICA: Not necessary

| Sampling date | Parameters | Results | Indian standard ^{*1} | Action taken ^{*2} | Note |
|---------------|---|---------|-------------------------------|----------------------------|------------------------------------|
| | PM | | 50 mg/Nm ³ | | Parameters based on CPCB guideline |
| | HCL | | 50 mg/Nm ³ | | |
| | SO ₂ | | 200 mg/Nm ³ | | |
| | CO | | 100 mg/Nm ³ | | |
| | TOC | | 20 mg/Nm ³ | | |
| | HF | | 4 mg/Nm ³ | | |
| | NOx | | 400 mg/Nm ³ | | |
| | Dioxins/furans | | 0.1 ngTEQ/Nm ³ | | |
| | Cd + Th and their compounds | | 0.05 mg/Nm ³ | | |
| | Hg | | 0.05 mg/Nm ³ | | |
| | Sb + As + Pb + Co + Cr + Cu + Mn + Ni + V and their compounds | | 0.50 mg/Nm ³ | | |

*1: Environment (Protection) Rules 1986: Common Hazardous Waste Incinerator

*2: Describe actions taken in case of exceedance of standard.

3) Continuous monitoring of emission gas from new TSDF incinerator

- Monitoring reason: Required by EC of this Project and CPCB guideline
- Monitoring status: Implemented by TSDF operator for existing TSDF incinerator
- Requirement of technical assistance from JICA: Not necessary

| Month | No. of days operated | Parameters | Results | | Indian standard ^{*1} | Reference standard ^{*2} | Action taken ^{*3} | Note |
|-------|----------------------|-----------------|---------|-----|-------------------------------|----------------------------------|----------------------------|---|
| | | | Mean | Max | | | | |
| | | PM | | | 50 mg/Nm ³ | 10 mg/m ³ | | Parameters based on CPCB guideline and EC |
| | | NOx | | | 400 mg/Nm ³ | 200-400 mg/m ³ | | |
| | | SO ₂ | | | 200 mg/Nm ³ | 50 mg/m ³ | | |
| | | CO | | | 100 mg/Nm ³ | 50-150 mg/m ³ | | |
| | | HCL | | | 50 mg/Nm ³ | 10 mg/m ³ | | |

*1: Environment (Protection) Rules 1986: Common Hazardous Waste Incinerator

*2: EU Directive 2000/76/EC (applicable to MSW and Hazardous Waste Incinerators). To be referred as benchmark standard as appropriate.

*3: Describe actions taken in case of exceedance of standard.

4) Continuous monitoring of emission gas from existing TSDF incinerator

- Monitoring reason: Required by EC of the existing TSDF incinerator and CPCB guideline
- Monitoring status: Implemented by TSDF operator
- Requirement of technical assistance from JICA: Not necessary

| Month | No. of days operated | Parameters | Results | | Indian standard ^{*1} | Action taken ^{*2} | Note |
|-------|----------------------|-----------------|---------|-----|-------------------------------|----------------------------|---|
| | | | Mean | Max | | | |
| | | PM | | | 50 mg/Nm ³ | | Parameters based on CPCB guideline and EC |
| | | NO _x | | | 400 mg/Nm ³ | | |
| | | SO ₂ | | | 200 mg/Nm ³ | | |
| | | CO | | | 100 mg/Nm ³ | | |
| | | HCL | | | 50 mg/Nm ³ | | |

*1: Environment (Protection) Rules 1986: Common Hazardous Waste Incinerator

*2: Describe actions taken in case of exceedance of standard.

5) Ambient air quality around TSDF

- Monitoring reason: Required by EC of the existing TSDF incinerator, GPCB's Consent to Operate of TSDF and CPCB guideline
- Monitoring status: Not implemented so far
- Requirement of technical assistance from JICA: Analysis of asbestos

| Sampling period/date | Parameter | Results | | | Indian standard* ¹ | Reference standard | Action taken* ⁵ | Note |
|----------------------|-------------------|---------------|---------------|---------------|--------------------------------|---|----------------------------|---|
| | | St.1 | St.2 | St.3 | | | | |
| | PM ₁₀ | Mean: Max: | Mean: Max: | Mean: Max: | 60 µg/m ³ (annual) | 50 µg/m ³ (annual)* ² | | Parameters based on CPCB guideline |
| | PM _{2.5} | Mean: Max: | Mean: Max: | Mean: Max: | 40 µg/m ³ (annual) | 25 µg/m ³ (annual)* ² | | |
| | SO ₂ | Mean: Max: | Mean: Max: | Mean: Max: | 50 µg/m ³ (annual) | - | | |
| | NO ₂ | Mean: Max: | Mean: Max: | Mean: Max: | 40 µg/m ³ (annual) | 40 µg/m ³ (annual)* ² | | |
| | O ₃ | | | | 100 µg/m ³ (8-hrs) | - | | |
| | CO | | | | 2 mg/m ³ (8-hrs) | - | | |
| | Pb | | | | 1.0 µg/m ³ (24-hrs) | - | | |
| | As | | | | 6 ng/m ³ (annual) | - | | |
| | Ni | | | | 20 ng/m ³ (annual) | - | | |
| | Benzene | | | | 5 µg/m ³ (annual) | - | | |
| | Benzo(a)Pyrene | | | | 1 g/m ³ (annual) | - | | |
| | VOC | | | | - | Baseline data* ⁴ | | |
| | PAHs | | | | - | Baseline data* ⁴ | | |
| | Asbestos | | | | - | 0.01 f/cc* ³ | | Additional parameter proposed by JICA Study Team but may require technical assistance for analysis. |

*1: National Ambient Air Quality Standards 2009 (industrial area)

*2: WHO Ambient Air Quality Guidelines. To be referred as benchmark standard as appropriate.

*3: Japanese work place boundary standard stipulated under Air Pollution Control Act

*4: Baseline data that will be acquired prior to operation.

*5: Describe actions taken in case of exceedance of standard.

6) Ambient air quality around yard/access road

- Monitoring reason: Proposed in the EIA of this Project
- Monitoring status: Not implemented so far
- Requirement of technical assistance from JICA: Analysis of asbestos

| Sampling period/date | Parameter | Results | | | | | | Indian standard* ¹ | Reference standard | Action taken* ⁴ | Note |
|----------------------|-------------------|---------|------|------|------|------|------|--------------------------------|--|----------------------------|--|
| | | St.1 | St.2 | St.3 | St.4 | St.5 | St.6 | | | | |
| | PM ₁₀ | | | | | | | 100 µg/m ³ (24-hrs) | 100 µg/m ³ (24-hrs)* ² | | Parameters based on draft monitoring plan of GMB |
| | PM _{2.5} | | | | | | | 60 µg/m ³ (24-hrs) | 50 µg/m ³ (24-hrs)* ² | | |
| | SO ₂ | | | | | | | 80 µg/m ³ (24-hrs) | 50 µg/m ³ (24-hrs)* ² | | |
| | NO ₂ | | | | | | | 80 µg/m ³ (24-hrs) | - | | |
| | O ₃ | | | | | | | 100 µg/m ³ (8-hrs) | - | | |
| | CO | | | | | | | 2 mg/m ³ (8-hrs) | - | | |
| | Pb | | | | | | | 1.0 µg/m ³ (24-hrs) | - | | |
| | As | | | | | | | 6 ng/m ³ (annual) | - | | |
| | Ni | | | | | | | 20 ng/m ³ (annual) | - | | |
| | Benzene | | | | | | | 5 µg/m ³ (annual) | - | | |
| | Benzo(a)Pyrene | | | | | | | 1 g/m ³ (annual) | - | | |
| | Asbestos | | | | | | | - | Baseline data* ³ | | |

*1: National Ambient Air Quality Standards 2009 (industrial area)

*2: WHO Ambient Air Quality Guidelines. To be referred as benchmark standard as appropriate.

*3: Baseline data that will be acquired prior to operation.

*4: Describe actions taken in case of exceedance of standard.

7) Air quality inside yard

- Monitoring reason: Required by GPCB's Consent to Operate of existing yards
- Monitoring status: Implemented regularly by some yard operators
- Requirement of technical assistance from JICA: Not necessary

| Month | No. of sampled yards | Parameters | Results | | Indian standard* ¹ | Plot no. exceeding standard | Actions taken* ² | Note |
|-------|----------------------|-------------------|---------|-----|--------------------------------|-----------------------------|-----------------------------|--|
| | | | Mean | Max | | | | |
| | | PM ₁₀ | | | 100 µg/m ³ (24-hrs) | | | Parameters based on Consent to Operate of yard |
| | | PM _{2.5} | | | 60 µg/m ³ (24-hrs) | | | |
| | | SO ₂ | | | 80 µg/m ³ (24-hrs) | | | |
| | | NO ₂ | | | 80 µg/m ³ (24-hrs) | | | |
| | | Pb | | | 1.0 µg/m ³ (24-hrs) | | | Additional parameter proposed by JICA Study Team |

*1: National Ambient Air Quality Standards 2009 (industrial area)

*2: Describe actions taken in case of exceedance of standard.

8) Asbestos inside yard

- Monitoring reason: Required by EC of this Project and GPCB's Consent to Operate of yards
- Monitoring status: Not implemented so far
- Requirement of technical assistance from JICA: Analysis of asbestos

| Month | No. of sampled yards | Parameter | Results | Reference standard | Plot no. exceeding standard | Actions taken ^{*3} | Note |
|-------|----------------------|--------------------------|----------------|-------------------------|-----------------------------|-----------------------------|---|
| | | Asbestos (work zone) | Mean; Max.: | 0.1 f/cc ^{*1} | | | May require technical assistance for analysis. |
| | | Asbestos (yard boundary) | Mean; Max.: | 0.01 f/cc ^{*2} | | | Additional parameter proposed by JICA Study Team but may require technical assistance for analysis. |

*1: OSHA standard: 1915.1001

*2: Japanese work place boundary standard stipulated under Air Pollution Control Act

*3: Describe actions taken in case of exceedance of standard.

(2) Noise

1) Ambient noise around yard/access road

- Monitoring reason: Proposed in the EIA of this Project
- Monitoring status: Not implemented so far
- Requirement of technical assistance from JICA: Not necessary

| Sampling date | Location | Results (LAeq) | | Indian standard ^{*1} | Reference standard ^{*2} | Action taken ^{*3} |
|---------------|----------|----------------|-------|-------------------------------|----------------------------------|----------------------------|
| | | Day | Night | | | |
| | St.1 | | | Day: 75 dBA Night: 70 dBA | Day: 70 dBA Night: 70 dBA | |
| | St.2 | | | | | |
| | St.3 | | | | | |
| | St.4 | | | | | |
| | St.5 | | | | | |
| | St.6 | | | | | |

*1: Noise Pollution (Regulation and Control) Rules 2000 (Industrial area)

*2: Guidelines for Community Noise, World Health Organization (WHO), 1999. To be referred as benchmark standard as appropriate.

*3: Describe actions taken in case of exceedance of standard.

(3) Water quality

1) Seawater quality around yard

- Monitoring reason: Required by EC of this Project
- Monitoring status: Not implemented so far
- Requirement of technical assistance from JICA: Not necessary

| Sampling date | Parameter | Results | | | | | | | | Indian standard ^{*1} | Reference standard ^{*2} | Actions taken ^{*3} | Note |
|---------------|----------------|---------|------|------|------|------|------|------|------|------------------------------------|----------------------------------|-----------------------------|--|
| | | St.1 | St.2 | St.3 | St.4 | St.5 | St.6 | St.7 | St.8 | | | | |
| | pH | | | | | | | | | 6.0-9.0 | - | | Parameters based on EC of this Project |
| | DO | | | | | | | | | 3.0 mg/l | - | | |
| | Color/odour | | | | | | | | | No visible color or offensive odor | - | | |
| | Oil | | | | | | | | | 10 mg/l | - | | |
| | Fecal Coliform | | | | | | | | | 500/100 ml (MP N) | - | | |
| | BOD | | | | | | | | | 5 mg/l | - | | |
| | Temperature | | | | | | | | | - | Baseline data ^{*2} | | Parameters based on draft monitoring plan of GMB |
| | Turbidity | | | | | | | | | - | Baseline data ^{*2} | | |
| | SS | | | | | | | | | - | Baseline data ^{*2} | | |
| | Salinity | | | | | | | | | - | Baseline data ^{*2} | | |
| | T-N | | | | | | | | | - | Baseline data ^{*2} | | |
| | T-P | | | | | | | | | - | Baseline data ^{*2} | | |
| | Chlorophyll-a | | | | | | | | | - | Baseline data ^{*2} | | |
| | Al | | | | | | | | | - | Baseline data ^{*2} | | |
| | As | | | | | | | | | - | Baseline data ^{*2} | | |
| | Cd | | | | | | | | | - | Baseline data ^{*2} | | |
| | Co | | | | | | | | | - | Baseline data ^{*2} | | |
| | Cr | | | | | | | | | - | Baseline data ^{*2} | | |
| | Cu | | | | | | | | | - | Baseline data ^{*2} | | |
| | Hg | | | | | | | | | - | Baseline data ^{*2} | | |
| | Mn | | | | | | | | | - | Baseline data ^{*2} | | |
| | Ni | | | | | | | | | - | Baseline data ^{*2} | | |
| | Pb | | | | | | | | | - | Baseline data ^{*2} | | |

| | | | | | | | | | | | | | | |
|--|----|--|--|--|--|--|--|--|--|--|---|-----------------------------|--|--|
| | Zn | | | | | | | | | | - | Baseline data ^{*2} | | |
|--|----|--|--|--|--|--|--|--|--|--|---|-----------------------------|--|--|

*1: Environment (Protection) Rules 1986: Water Quality Standards for Coastal Waters (SW-IV)

*2: There are no internationally common standard for sea water quality. Hence baseline data should be referred for parameters with no Indian standard which will be acquired prior to operation.

*3: Describe actions taken in case of exceedance of standard.

2) Groundwater quality around TSDF and yard

- Monitoring reason: Monitoring around TSDF required by GPCB's Consent to Operate of TSDF and CPCB guideline. Monitoring around yards proposed by JICA Study Team.
- Monitoring status: Monitoring around TSDF is implemented by GPCB but with limited parameters
- Requirement of technical assistance from JICA: Analysis of PCBs, PBBs, PAHs, TBT

TSDF sites

| Sampling date | Parameter | Results | | | | Indian standard* ¹ | Reference standard* ² | Actions taken* ³ | Note |
|---------------|-----------------|---------|------|------|------|-------------------------------|----------------------------------|-----------------------------|------------------------------------|
| | | St.1 | St.2 | St.3 | St.4 | | | | |
| | pH | | | | | 6.5-8.5 | - | | Parameters based on CPCB guideline |
| | Color | | | | | 5 (Hazen unit) | - | | |
| | EC | | | | | - | Baseline data | | |
| | Turbidity | | | | | 1 NTU | - | | |
| | SS | | | | | - | Baseline data | | |
| | TDS | | | | | 500 mg/l | - | | |
| | TOC | | | | | - | Baseline data | | |
| | COD | | | | | - | Baseline data | | |
| | Pb | | | | | 0.01 mg/l | - | | |
| | Cd | | | | | 0.003 mg/l | - | | |
| | Cu | | | | | 0.05 mg/l | - | | |
| | Zn | | | | | 5 mg/l | - | | |
| | Cr | | | | | 0.05 mg/l | - | | |
| | Hg | | | | | 0.001 mg/l | - | | |
| | Ni | | | | | 0.02 mg/l | - | | |
| | Fe | | | | | 0.3 mg/l | - | | |
| | CN | | | | | 0.05 mg/l | - | | |
| | F | | | | | 1.0 mg/l | - | | |
| | As | | | | | 0.01 mg/l | - | | |
| | Mn | | | | | 0.1 mg/l | - | | |
| | Cl | | | | | 250 mg/l | - | | |
| | NO ₃ | | | | | 45 mg/l | - | | |
| | SO ₄ | | | | | 200 mg/l | - | | |
| | T-N | | | | | - | Baseline data | | |

| Sampling date | Parameter | Results | | | | Indian standard ^{*1} | Reference standard ^{*2} | Actions taken ^{*3} | Note |
|---------------|------------------|---------|------|------|------|-------------------------------|----------------------------------|-----------------------------|--|
| | | St.1 | St.2 | St.3 | St.4 | | | | |
| | Total Alkalinity | | | | | 200 mg/l | - | | Additional parameters proposed by JICA Study Team but may require technical assistance for analysis. |
| | Total hardness | | | | | 200 mg/l | - | | |
| | Total pesticides | | | | | - | Baseline data | | |
| | PCBs | | | | | 0.0005 mg/l | - | | |
| | PBBs | | | | | - | Baseline data | | |
| | PAHs | | | | | 0.0001 mg/l | - | | |
| | TBT | | | | | - | Baseline data | | |

*1: Drinking water quality (IS 10500:2012)

*2: There are no internationally common standard for groundwater quality. Hence baseline data should be referred for parameters with no Indian standard which will be acquired prior to operation.

*3: Describe actions taken in case of exceedance of standard.

Yard sites

| Sampling date | Parameter | Results | | | | Indian standard ^{*1} | Reference standard ^{*2} | Actions taken ^{*3} | Note |
|---------------|-----------|---------|------|------|------|-------------------------------|----------------------------------|-----------------------------|------------------------------------|
| | | St.1 | St.2 | St.3 | St.4 | | | | |
| | pH | | | | | 6.5-8.5 | - | | Parameters based on CPCB guideline |
| | Color | | | | | 5 (Hazen unit) | - | | |
| | EC | | | | | - | Baseline data ^{*2} | | |
| | Turbidity | | | | | 1 NTU | - | | |
| | SS | | | | | - | Baseline data ^{*2} | | |
| | TDS | | | | | 500 mg/l | - | | |
| | TOC | | | | | - | Baseline data ^{*2} | | |
| | COD | | | | | - | Baseline data ^{*2} | | |
| | Pb | | | | | 0.01 mg/l | - | | |
| | Cd | | | | | 0.003 mg/l | - | | |
| | Cu | | | | | 0.05 mg/l | - | | |
| | Zn | | | | | 5 mg/l | - | | |
| | Cr | | | | | 0.05 mg/l | - | | |
| | Hg | | | | | 0.001 mg/l | - | | |
| | Ni | | | | | 0.02 mg/l | - | | |
| | Fe | | | | | 0.3 mg/l | - | | |
| | CN | | | | | 0.05 mg/l | - | | |
| | F | | | | | 1.0 mg/l | - | | |
| | As | | | | | 0.01 mg/l | - | | |

| Sampling date | Parameter | Results | | | | Indian standard ^{*1} | Reference standard ^{*2} | Actions taken ^{*3} | Note |
|---------------|------------------|---------|------|------|------|-------------------------------|----------------------------------|-----------------------------|--|
| | | St.1 | St.2 | St.3 | St.4 | | | | |
| | Mn | | | | | 0.1 mg/l | - | | |
| | Cl | | | | | 250 mg/l | - | | |
| | NO ₃ | | | | | 45 mg/l | - | | |
| | SO ₄ | | | | | 200 mg/l | - | | |
| | T-N | | | | | - | Baseline data ^{*2} | | |
| | Total Alkalinity | | | | | 200 mg/l | - | | |
| | Total hardness | | | | | 200 mg/l | - | | |
| | Total pesticides | | | | | - | Baseline data ^{*2} | | |
| | PCBs | | | | | 0.0005 mg/l | - | | Additional parameters proposed by JICA Study Team but may require technical assistance for analysis. |
| | PBBs | | | | | - | Baseline data ^{*2} | | |
| | PAHs | | | | | 0.0001 mg/l | - | | |
| | TBT | | | | | - | Baseline data ^{*2} | | |

*1: Drinking water quality (IS 10500:2012)

*2: There are no internationally common standard for groundwater quality. Hence baseline data should be referred for parameters with no Indian standard which will be acquired prior to operation.

*3: Describe actions taken in case of exceedance of standard.

3) Effluent quality of ETPs of TSDF

- Monitoring reason: Required by GPCB's Consent to Establish of TSDF and CPCB guideline.
- Monitoring status: Inspection of existing ETP implemented by GPCB but with limited parameters
- Requirement of technical assistance from JICA: Analysis of PCBs

Existing ETP

| Sampling date | Parameter | Results | Indian standard*1 | Reference standard | Actions taken*4 | Note |
|---------------|-------------------------------|---------|----------------------------|--------------------|-----------------|--|
| | pH | | 6.0-9.0 | | | Parameters based on Consent to Establish of TSDF |
| | Temp. | | < 5 °C above ambient water | | | |
| | Color | | - | | | |
| | SS | | 100 mg/l | | | |
| | Oil | | 10 mg/l | | | |
| | NH ₃ -N | | 50 mg/l | | | |
| | BOD | | 30 mg/l | | | |
| | COD | | 250 mg/l | | | |
| | Cl | | 1,000 mg/l | | | |
| | SO ₄ ²⁻ | | 1,000 mg/l | | | |
| | TDS | | 2,100 mg/l | | | |
| | Phenolic compound | | 1 mg/l | | | |
| | CN | | 0.2 mg/l | | | |
| | F | | 2 mg/l | | | |
| | As | | 0.2 mg/l | | | |
| | Cr | | 2 mg/l | | | |
| | Cr ⁺⁶ | | 0.1 mg/l | | | |
| | Cu | | 3 mg/l | | | |
| | Pb | | 0.1 mg/l | | | |
| | Hg | | 0.01 mg/l | | | |
| | Ni | | 3 mg/l | | | |
| | Zn | | 5 mg/l | | | |
| | Insecticides/pesticides | | Absent | | | |
| | PCBs | | - | 3 µg/l*2 | | Additional |

| | | | | | | |
|--|--|--|--|--|--|--|
| | | | | | | parameter proposed by JICA Study Team but may require technical assistance for analysis. |
|--|--|--|--|--|--|--|

*1: Environment (Protection) Amendment Rules 2015: Effluent standards for common effluent treatment plants (inland surface water)

*2: Uniform National Effluent Standards of Japan

*3: Describe actions taken in case of exceedance of standard.

New ETP

| Sampling date | Parameter | Results | Indian standard* ¹ | Reference standard | Actions taken* ⁴ | Note |
|---------------|-------------------------------|---------|-------------------------------|--|-----------------------------|---|
| | pH | | 6.0-9.0 | 6.0-9.0* ³ | | Parameters based on Consent to Establish of TSDF |
| | Temp. | | < 5 °C above ambient water | - | | |
| | Color | | - | - | | |
| | SS | | 100 mg/l | 88 mg/l (daily max.) 27 mg/l (monthly avg.)* ³ | | |
| | Oil | | 10 mg/l | - | | |
| | NH ₃ -N | | 50 mg/l | - | | |
| | BOD | | 30 mg/l | 120 mg/l* ² - | | |
| | COD | | 250 mg/l | - | | |
| | Cl | | 1,000 mg/l | - | | |
| | SO ₄ ²⁻ | | 1,000 mg/l | - | | |
| | TDS | | 2,100 mg/l | - | | |
| | Phenolic compound | | 1 mg/l | - | | |
| | CN | | 0.2 mg/l | 1 mg/l* ² - | | |
| | F | | 2 mg/l | - | | |
| | As | | 0.2 mg/l | 1.1 mg/l (daily max.) 0.54 mg/l (monthly avg.) * ³ | | |
| | Cr | | 2 mg/l | 1.1 mg/l (daily max.) 0.46 mg/l (monthly avg.) * ³ | | |
| | Cr ⁺⁶ | | 0.1 mg/l | 0.5 mg/l* ² | | |
| | Cu | | 3 mg/l | 3 mg/l* ² | | |
| | Pb | | 0.1 mg/l | 0.1 mg/l* ² | | |
| | Hg | | 0.01 mg/l | 0.005 mg/l* ² | | |
| | Ni | | 3 mg/l | - | | |
| | Zn | | 5 mg/l | 0.535 mg/l (daily max.) 0.296 mg/l (monthly avg.) * ³ | | |
| | Insecticides/pesticides | | Absent | - | | |
| | PCBs | | - | 3 µg/l* ² | | Additional parameter proposed by JICA Study Team but may require technical assistance for |

| | | | | | | |
|--|--|--|--|--|--|-----------|
| | | | | | | analysis. |
|--|--|--|--|--|--|-----------|

- *1: Environment (Protection) Amendment Rules 2015: Effluent standards for common effluent treatment plants (inland surface water)
- *2: Uniform National Effluent Standards of Japan
- *3: U.S. EPA Effluent Guidelines for Centralized Waste Treatment, 40 CFR Part 437. To be referred as benchmark standard as appropriate.
- *4: Describe actions taken in case of exceedance of standard.

4) Continuous monitoring of effluent quality of new ETP of TSDF

- Monitoring reason: Required by EC of this Project
- Monitoring status: Not implemented with existing ETP
- Requirement of technical assistance from JICA: Not necessary

| Month | No. of days operated | Parameters | Results | | Indian standard ^{*1} | Reference standard | Action taken ^{*3} | Note |
|-------|----------------------|------------|---------|-----|-------------------------------|--|----------------------------|--|
| | | | Mean | Max | | | | |
| | | Temp. | | | < 5 °C above ambient water | - | | Parameters proposed by JICA Study Team |
| | | pH | | | 6.0-9.0 | 6.0-9.0 ^{*2} | | |
| | | Oil | | | 10 mg/l | - | | |
| | | SS | | | 100 mg/l | 88 mg/l (daily max.) 27 mg/l (monthly avg.) ^{*2} | | |

*1: Environment (Protection) Amendment Rules 2015: Effluent standards for common effluent treatment plants (inland surface water)

*2: U.S. EPA Effluent Guidelines for Centralized Waste Treatment, 40 CFR Part 437. To be referred as benchmark standard as appropriate.

*3: Describe actions taken in case of exceedance of standard.

5) Continuous monitoring of effluent quality of ETP of tank cleaning barge

- Monitoring reason: Proposed by JICA Study Team
- Monitoring status: Not implemented so far
- Requirement of technical assistance from JICA: Not necessary

| Month | Name of tanker | No. of days operated | Parameters | Results | | Indian standard ^{*1} | Reference standard | Action taken ^{*3} | Note |
|-------|----------------|----------------------|------------|---------|-----|-------------------------------|---|----------------------------|--|
| | | | | Mean | Max | | | | |
| | | | Temp. | | | < 5 °C above ambient water | - | | Parameters proposed by JICA Study Team |
| | | | pH | | | 6.0-9.0 | 6.0-9.0 ^{*2} | | |
| | | | Oil | | | 10 mg/l | - | | |
| | | | SS | | | 100 mg/l | 88 mg/l (daily max.) 27 mg/l (monthly) | | |

| | | | | | | | | | |
|--|--|--|--|--|--|--|----------|--|--|
| | | | | | | | avg.) *2 | | |
|--|--|--|--|--|--|--|----------|--|--|

*1: Environment (Protection) Amendment Rules 2015: Effluent standards for common effluent treatment plants (sea)

*2: U.S. EPA Effluent Guidelines for Centralized Waste Treatment, 40 CFR Part 437. To be referred as benchmark standard as appropriate.

*3: Describe actions taken in case of exceedance of standard.

6) Seawater quality around tank cleaning barge operation area

- Monitoring reason: Proposed by JICA Study Team
- Monitoring status: Not implemented so far
- Requirement of technical assistance from JICA: Not necessary

| Month | Name of tanker | No. of days operated | Parameter | Method | Results | Indian standard* ¹ | Reference standard | Action taken* ² | Note |
|-------|----------------|----------------------|------------------|----------------------------|-----------------------|--|------------------------------------|----------------------------|--|
| | | | Oil slick | Visual observation | | - | Not to be visible | | Parameters proposed by JICA Study Team |
| | | | Color/odor | Visual observation | | No noticeable color or offensive odor | - | | |
| | | | Floating matters | Visual observation | | Nothing obnoxious or detrimental for use purpose | - | | |
| | | | Temp. | <i>In situ</i> measurement | Mean: Max.: | - | - | | |
| | | | pH | <i>In situ</i> measurement | Mean: Max.: | 6.5-8.5 | - | | |
| | | | DO | <i>In situ</i> measurement | Mean: Max.: | 5.0 mg/l | - | | |
| | | | Turbidity | <i>In situ</i> measurement | Mean: Max.: | 30 NTU | - | | |
| | | | SS | Lab analysis | Pre: Mid: Post: | | Not to exceed pre-operation levels | | |
| | | | Oil | Lab analysis | Pre: Mid: Post: | 0.1 mg/l | - | | |
| | | | Hg | Lab analysis | Pre: Mid: Post: | 0.001 mg/l | - | | |
| | | | Pb | Lab analysis | Pre: Mid: | 0.001 mg/l | - | | |

| | | | | | | | | | |
|--|--|--|----|--------------|-----------------------|-----------|---|--|--|
| | | | | | Post: | | | | |
| | | | Cd | Lab analysis | Pre: Mid: Post: | 0.01 mg/l | - | | |

*1: Environment (Protection) Rules 1986: Water Quality Standards for Coastal Waters (SW-I & II)

*2: Describe actions taken in case of exceedance of standard.

(4) Sediment quality around yard

- Monitoring reason: Proposed in the EIA of this Project
- Monitoring status: Not implemented so far
- Requirement of technical assistance from JICA: Analysis of PAHs, PCBs, TBT

| Sampling date | Parameter | Results | | | | | | | | | | Reference standard ^{*1} | Actions taken ^{*2} | Note |
|---------------|-----------|---------|------|------|------|------|------|------|------|------|-------|----------------------------------|-----------------------------|--|
| | | St.1 | St.2 | St.3 | St.4 | St.5 | St.6 | St.7 | St.8 | St.9 | St.10 | | | |
| | Al | | | | | | | | | | | Baseline data | | Parameters based on draft monitoring plan of GMB. May require technical assistance for PAHs, PCBs and TBT analysis. |
| | As | | | | | | | | | | | Baseline data | | |
| | Cd | | | | | | | | | | | Baseline data | | |
| | Co | | | | | | | | | | | Baseline data | | |
| | Cr | | | | | | | | | | | Baseline data | | |
| | Cu | | | | | | | | | | | Baseline data | | |
| | Hg | | | | | | | | | | | Baseline data | | |
| | Mn | | | | | | | | | | | Baseline data | | |
| | Ni | | | | | | | | | | | Baseline data | | |
| | Pb | | | | | | | | | | | Baseline data | | |
| | Zn | | | | | | | | | | | Baseline data | | |
| | PAHs | | | | | | | | | | | Baseline data | | |
| | PCBs | | | | | | | | | | | Baseline data | | |
| | TBT | | | | | | | | | | | Baseline data | | |

*1: There are no internationally common standard for sediment quality. Hence baseline data should be referred that will be acquired prior to operation. However, "Australian and New Zealand Guidelines for Fresh and Marine Water Quality" and "Canadian Sediment Quality Guidelines for the Protection of Aquatic Life" may be referred as appropriate.

*2: Describe actions taken in case of exceedance of standard.

(5) Soil quality

1) Recycling yards

- Monitoring reason: Proposed by GMB
- Monitoring status: Implemented by some yard operators but with limited parameters
- Requirement of technical assistance from JICA: Analysis of PAHs, PCBs, TBT

| Month | No. of sampled yards | Parameter | Results | | Reference standard* ¹ | Plot no. exceeding standard | Actions taken * ² | Note |
|-------|----------------------|------------------|---------|-----|----------------------------------|-----------------------------|------------------------------|--|
| | | | Mean | Max | | | | |
| | | | | | | | | Parameters proposed by JICA Study Team. May require technical assistance for PAHs, PCBs and TBT analysis. |
| | | Cd | | | Baseline data | | | |
| | | Cr ⁺⁶ | | | Baseline data | | | |
| | | Hg | | | Baseline data | | | |
| | | | | | | | | |
| | | Pb | | | Baseline data | | | |
| | | | | | | | | |
| | | PAHs | | | Baseline data | | | |
| | | PCBs | | | Baseline data | | | |
| | | TBT | | | Baseline data | | | |

*1: There are no internationally common standard for soil quality. Hence baseline data should be referred that will be acquired prior to operation. However, “Soil Remediation Circular 2013” and “Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (Industrial use)” may be referred as appropriate.

*2: Describe actions taken in case of exceedance of standard.

2) Around TSDF

- Monitoring reason: Required by CPCB guideline
- Monitoring status: Not implemented so far
- Requirement of technical assistance from JICA: Analysis of dioxins, PCBs

| Sampling date | Parameter | Results | | | | Reference standard ^{*1} | Actions taken ^{*2} | Note |
|---------------|----------------|---------|-----|-----|-----|----------------------------------|--|------|
| | | So1 | So2 | So3 | So4 | | | |
| | Al | | | | | Baseline data | Parameters proposed by JICA Study Team but may require technical assistance for analysis of dioxins and PCBs | |
| | As | | | | | Baseline data | | |
| | Cd | | | | | Baseline data | | |
| | Co | | | | | Baseline data | | |
| | Cr | | | | | Baseline data | | |
| | Cu | | | | | Baseline data | | |
| | Hg | | | | | Baseline data | | |
| | Mn | | | | | Baseline data | | |
| | Ni | | | | | Baseline data | | |
| | Pb | | | | | Baseline data | | |
| | Zn | | | | | Baseline data | | |
| | Dioxins/furans | | | | | Baseline data | | |
| | PCBs | | | | | Baseline data | | |

*1: There are no internationally common standard for soil quality. Hence baseline data should be referred that will be acquired prior to operation. However, "Soil Remediation Circular 2013" and "Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (Industrial use)" may be referred as appropriate.

*2: Describe actions taken in case of exceedance of standard.

(6) Ecosystem

1) TBT concentration of benthos

- Monitoring reason: Proposed by JICA Study Team
- Monitoring status: Not implemented so far
- Requirement of technical assistance from JICA: Analysis of TBT

| Sampling date | Sampled species | Results (TBT concentration) | Reference standard*1 |
|---------------|-----------------|-----------------------------|----------------------|
| | | | Baseline data |
| | | | |
| | | | |
| | | | |

*1: Baseline data that will be acquired prior to operation.

2) Plankton diversity

- Monitoring reason: Proposed by GMB draft monitoring plan
- Monitoring status: Not implemented so far
- Requirement of technical assistance from JICA: Not necessary

| Sampling date | Sampling location | Results (Shannon Weaver Index) | Reference standard*1 |
|---------------|-------------------|--------------------------------|----------------------|
| | St.1 | Phytoplankton: Zooplankton: | Baseline data |
| | St.2 | Phytoplankton: Zooplankton: | |
| | St.3 | Phytoplankton: Zooplankton: | |
| | St.4 | Phytoplankton: Zooplankton: | |
| | St.5 | Phytoplankton: Zooplankton: | |
| | St.6 | Phytoplankton: Zooplankton: | |
| | St.7 | Phytoplankton: Zooplankton: | |
| | St.8 | Phytoplankton: Zooplankton: | |

*1: Baseline data that will be acquired prior to operation.

3) Benthos abundance and diversity

- Monitoring reason: Proposed by GMB draft monitoring plan
- Monitoring status: Not implemented so far
- Requirement of technical assistance from JICA: Not necessary

| Sampling date | Sampling location | Results | Reference standard* ¹ |
|---------------|-------------------|-----------------------------------|----------------------------------|
| | St.1 | Biomass: Shannon Weaver Index: | Baseline data |
| | St.2 | Biomass: Shannon Weaver Index: | |
| | St.3 | Biomass: Shannon Weaver Index: | |
| | St.4 | Biomass: Shannon Weaver Index: | |
| | St.5 | Biomass: Shannon Weaver Index: | |
| | St.6 | Biomass: Shannon Weaver Index: | |
| | St.7 | Biomass: Shannon Weaver Index: | |
| | St.8 | Biomass: Shannon Weaver Index: | |

*1: Baseline data that will be acquired prior to operation.

Occupational safety

1) Asbestos

- Monitoring reason: Required by EC of this Project
- Monitoring status: Implemented by some yard operators
- Requirement of technical assistance from JICA: Not necessary

| Number of workers diagnosed | Number of workers diagnosed with asbestos related disease | Plot no. diagnosed with asbestos related disease | Action taken* |
|-----------------------------|---|--|---------------|
| | | | |

*: Describe actions taken in case of diagnosed with asbestos related disease.

2) Blood lead levels

- Monitoring reason: Proposed by JICA Study Team
- Monitoring status: Not implemented so far
- Requirement of technical assistance from JICA: Not necessary

| Number of workers diagnosed | Number of workers with blood lead levels exceeding OSHA standard* ¹ | Plot no. exceeding OSHA standard | Action taken* ² |
|-----------------------------|--|----------------------------------|----------------------------|
| | | | |

*1: OSHA standard 1919.1025: 50 µg/dL

*2: Describe actions taken in case of exceedance of OSHA standard

3) Occupational accidents

- Monitoring reason: Responsibility of GMB
- Monitoring status: Implemented by GMB
- Requirement of technical assistance from JICA: Not necessary

| Month | Date and type of occupational accidents | No. and type of injury | Cause of accident | Action taken* |
|-------|---|------------------------|-------------------|---------------|
| | | | | |

*: Describe actions taken in case of any accidents.

(7) Other

1) Update regarding improvement of workers' living condition*

| Date | Update regarding improvement of worker's living condition |
|------|---|
| | <i>Please describe any activities done/planned by GMB or other related organizations to improve worker's living condition</i> |

* Background of this monitoring parameter: Improvement of workers' living condition is not covered by the Project and not written on the Environmental Monitoring Plan. However, the JICA Advisory Committee for Environmental and Social Considerations required JICA to monitor this point.

Appendix 12 Minutes of Stake Holders Meeting

**MINUTES OF 1st STAKEHOLDER MEETING
ON “UPGRADATION OF EXISTING SHIP RECYCLING YARD AT ALANG SOSIYA, GUJARAT
FOR UNDERTAKING SAFE AND ENVIRONMENTALLY SOUND SHIP RECYCLING OPERATIONS”**

Date: 4th July, 2016 11:30-13:30

Venue: Safety Training & Labour Welfare Institute at Alang, Bhavnagar, Gujarat

Participants: 27 persons (List attached) + 2 Consultant from JICA Survey Team

Project proponent: Gujarat Maritime Board (GMB)

1. Presentation was made by Mr. Sharma, Deputy General Manager, Environment Cell (GMB) based on the Power Point Presentation (PPT attached) to explain background, aim and the possible scope of the Project with the current status of the JICA Survey.

2. Additional explanation was made by Mr. Nakajo, Project Manager of JICA Survey Team on the followings.

- Number of target yards to be improved will be decided during the survey.
- Requested cooperation for the additional environmental survey including soil, sediment, water sampling etc. within the yards.

3. Q&A Session

- Comment/Request from SRIA
 - Regarding the yard improvement, minimum criteria (technical criteria to satisfy HKC and beyond) shall be provided so that ship recycling yards can carry out the improvement by themselves with the reason of;
 - the timing of JICA project, some yards cannot wait until 2019 (expected time of JICA project) when the project starts. So far, 6 yards have already obtained Statement of Compliance to HKC and 18 yards are in the process of audit. Another 20-25 yards are considering to apply for the SoC within this year. It is assume that 35-40 yards will be upgraded by the end of 2016.
 - Therefore for those who wish to upgrade the yards before the JICA project, SRIA request JICA Survey Team to provide the blue print for the yard improvement (in 1 or 2 months) so that ship recyclers can follow that HKC/SBC guideline so that their advanced investments will be in line with JICA project criteria.
 - SRIA recommended to focus on the common facilities such as drainage, waste treatment facilities, etc., as the scope of JICA Project
- Answer from GMB/JICA Survey Team
 - Regarding yard improvement, JICA Survey Team will provide the technical criteria.
 - JICA Survey Team will provide the blue print for the yard improvement in the Draft Final Report expected to be presented in November 2016.
- Questions from Cash Buyer
 - Will those proposed mobile decontamination units only be used in HKC certified yards and what type of ship to be treated?
 - If the dry dock functions as a pre-decontamination facility is not required, is an additional mobile decontamination before beaching at anchorage point can be considered?
- Answer from JICA Team

- Based on the field survey, the current practice of tank cleaning is not sufficient. Oil tank cleaning method shall be improved after the beaching by introducing the mobile decontamination equipment for Tankers, FO tanks of other ships.
- Another tank cleaning system at the anchorage point such as floating barge before beaching will be investigated with in the JICA Study.
- Question from SRIA
 - At this moment, Alang/Sosiya cannot receive tankers because gas free for hot work cannot be ensured before beaching. If Project can provide the facility to clean tankers at the anchorage point, Alang/Sosiya can capture 30-40 extra ships every year. Can those facilities be considered in the Project together with the proposed mobile decontamination units at the yards?
- Comments from Ship recycler
 - Normally, it will take 11 days to clean 100,000 ton ships in the dock with self-powered ship. So proposed mobile decontamination units will be not enough to cover all the yards.
 - It is also the responsibility of the ship owners to clean the ships.
- Answer from JICA Team
 - Explained that mobile decontamination units will be used for cleaning oil tanks after beaching. For the Cape size tanker it may be cleaned cargo tanks about 5 days.
 - JICA Survey Team will examine whether the decontamination facility at anchorage point can be included in the Project during this Survey period.
- Comments from Worker's Union
 - Workers from different home state, with different cultural and religious background and different castes do not want to live together. Therefore, there are only 180 applications for 1,008 capacity labour colony of phase 1. Since the workers are so diverse, the dormitory with 16 people per room is not realistic.
 - Instead, they should be individual houses with cost recovery basis together with high subsidy rates.
- Answer from JICA team
 - Requested workers union and SRIA to share an idea and proposal of the labour colony arrangement. JICA Survey Team will take that into consideration for designing the facility.
- Question from Ship recycler
 - What is the mechanism of financial recovery to the Investment
- Answer from GMB/JICA team
 - GMB will improve the yard by utilizing Yen Loan and carefully calculate the tariff to be asked to recyclers with the area (m²) bases.
 - The additional costs and tariff will be carefully investigated and proposed to GMB taking the future demand and capital investment into consideration.

Participants list:

Dt. 4/7/2016.

| Sr. | Name | Plot No. / Name | |
|-----|---------------------|-----------------|---|
| 1 | B.K. Agarwal | 13 | Bairnath Nagar |
| 2 | Kamalkrishna Jirang | | Singote - Carshi Bungalows |
| 3 | Nitin Karakiya | Plot No. 23 | and Forver Sec. SRIA |
| 4 | Ramesh Aggarwal | Plot No. V2 | Hooghly Ship Break. |
| 5 | B.D. Patel | | Gujarat Pollution Control Board Bhavnagar |
| 6 | M.H. Pancholi | GPCR | Rhavnagar |
| 7 | R.M. Ram Patel | ASSR GWA | Vice President |
| 10 | Rahul Mishra | | Marine Engineer, Alang. |
| 11 | Dr. Gaurav K. Mehta | | Scientist, Env. Cell, GMB |
| 12 | Jignesh G. Patel | | Safety officer, GMB |
| 13 | M.G. Revaz | S.O. | GMB |
| 14 | Vijay Agrawal | Plot No. 2 | |
| 15 | Rajesh Jangid | Plot No. 82 | |
| 16 | Ashish Andharic | GMB S.O. | |
| 17 | R.R. Rathore | GMB S.O. | |
| 18 | Amit J. Munjani | GMB S.O. | |
| 19 | R.M. Damar | | GMB Traffic officer |
| 20 | Chhatrapati Gidul | | Competent Person |
| 21 | KUNDESHI ESOFSHAI | Plot No. 31 | |
| 22 | Satish Kumar Singh | Plot No. V1 | |
| 23 | M.D. Vaghela | | Asst. Director Ind. Safety SIRM |
| 24 | C.V. Durgani | | Ind. Safety & Health Officer Durgani |
| | Dr. P.M. Mistry | | Dy. Director Ind. Safety & Health Mistry |
| 25 | Manoj Maniwal | | Cherry Waste Management |
| 27 | Mr. Atul Sharma | | GMB Environment cell |

**MINUTES of 2nd STAKEHOLDER MEETING
ON “UPGRADATION OF EXISTING SHIP RECYCLING YARD AT ALANG SOSIYA, GUJARAT
FOR UNDERTAKING SAFE AND ENVIRONMENTALLY SOUND SHIP RECYCLING OPERATIONS”**

Date: 17th November, 2016 16:00-17:30

Venue: Safety Training & Labour Welfare Institute at Alang, Bhavnagar, Gujarat

Participants: See attached list

Project proponent: Gujarat Maritime Board (GMB)

1. Presentation was made by Mr. Sharma, Deputy General Manager, Environment Cell (GMB) based on the Power Point Presentation (PPT attached) to explain scope of the Project and results of EIA study of the JICA Study Team.
2. Q&A Session

| Organization | Comments/questions | Response |
|--------------|--|--|
| GPCB | Customs may no longer collect Ozone Depleting Substances (ODS) from ships. Can the improved TSDF treat ODS? | TSDF will not be able to treat ODS. It is the first time we heard such news. If it becomes official, we will need to find another way to treat/dispose ODS. |
| | The new oil sludge treatment system is a good plan. Hopefully, this will help to reduce illegal disposal of oily sludge. | Noted. |
| | Concrete batching plant will require Consent to Establish and Operate from GPCB. | Noted. |
| | Will new plant treat electric cable contained PCB? | TSDF will not treat insulation of the electric cable but as PCB contained, it can be incinerated. |
| | Is the plan for the labor colony included in the EIA? | The plan is within the scope of EIA. |
| | Result of the sediment investigation need to be justified with other data. | Noted. |
| | There are no Indian standard for discharging oily water in offshore waters as planned with the tank cleaning barge. This may be an issue if discharge is undertaken within territorial water (i.e. 12 nm). | We are planning to apply MARPOL standard but will consider further what is most appropriate. |
| SRIA | Will recyclers need to take all waste oil to TSDF? | No. Sellable waste oil can be sold to other authorized facilities as practiced now. |
| | If health check for asbestos workers and gas cutters becomes compulsory it should be the responsibility of the government to implement and not recyclers. | This issue must be discussed among all stakeholders and find the appropriate way forward. |
| | How will recyclers be charged after introduction of the new facilities? | It will be based on use and pay system. |
| | Are 5 large mobile cranes sufficient for handling all the ships? | Since using the large mobile crane is a new approach to ship breaking, we think it is better to limit are purchase to 5 units. And if proved successful we can purchase more |

| | | |
|--|---|---|
| | | later. |
| | Considering the recent accident in Pakistan, we now fully support the introduction of tank cleaning barge which will contribute in safer dismantling of oil tankers. | Noted and we expect that this will contribute in attracting oil tankers to Alang. |
| | Will there be any additional financial burden on the Ship Recyclers on their current tariff (to be paid to GMB) once the JICA loan is sanctioned and the Project commences? | There shall not be any additional burden on the current Ship Recyclers tariff. However, the financial mechanism is still being finalised and will require further discussion with GMB, SRIA and other stakeholders. |

Participants list:

| Name | Organisation | Position |
|-----------------------|---|------------------------|
| 1. Rahul Mishra | GMB | Marine Engineer |
| 2. Rajesh Jangial | Kiran Ship Building Company | Manager |
| 3. Dihibhai G. Pandya | Khushboo Indiya | Manager |
| 4. Mehul Kothari | Bharat Shipbuilding (63) and Vijay Shipbuilding (64) | Owner |
| 5. Shital Bhayan | Guam Shipbreaking | Owner |
| 6. Ryosing R. | GMB | Safety Officer |
| 7. F. Vora | Agates Ship Breaking | Owner |
| 8. Hiren Shah | Kathiawar Steels (P/No. 86) | Owner |
| 9. Bhadresh Shah | Dalkan Shipbreaking | Owner |
| 10. M.G. Revar | GMB | Safety Officer |
| 11. Manoj Shah | Virendra & Co Shipbreaker (Plot no.42) | Owner |
| 12. Ramesh Aggarwal | Ho. Secy, SRIA & Hooghly Shipbreaking (V2) | Owner |
| 13. M.G. Meghani | Rai Metal | Owner |
| 14. Birju Dathawala | Prachinti Shipbreaking, Sagar Shipbreaking, Kundan Asso. (3,4,20) | Owner |
| 15. Hareesh Parmar | Shiv shipping Co (Plot No.36) | Owner |
| 16. Manish Bansal | M/s. Samudra Alloys Pvt. Ltd. | Director |
| 17. R.R. Vyas | Regional Officer, GPCB | R.O. |
| 18. P.M. Mistry | Deputy Director, Ind. Safety & Health (DISH) - Alang | DY, DISH |
| 19. C.V. Durgran | Ind. Safety & Health (DISH) - Alang | Officer |
| 20. Captain S. Chadha | Port Officer Alang | GMB |
| 21. Chintan Kalthia | R.L. Kalthia Ship | Manager |
| 22. N.D. Vaghela | Assist. Director, Ind. Safety & Health (DISH) - Alang | AD, DISH |
| 23. Atul Sharma | GMB | DGM |
| 24. Chinpall Rauniar | Consultant | Consultant |
| 25. Y. Nakajo | JICA Team | Team Leader |
| 26. T. Sato | JICA Team | Environment Specialist |