



Environmental Monitoring Report

Project Number: 35290-023
March 2019
Period: July 2018 – December 2018

IND: North Eastern Region Capital Cities Development Investment Program (NERCCDIP) – T1 (Nagaland)

Submitted by:

State Investment Programme Management & Implementation Unit (SIPMIU), NERCCDIP,
Urban Development Department, Government of Nagaland

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From: sipmiu kohima <sipmiukohima@gmail.com>
Sent: Thursday, January 31, 2019 12:08 PM
To: Deepak Malik <dmalik@adb.org>
Subject: Submission of Semi Annual EMR for the period Jul-Dec 2018

Dear Dr Deepak Malik

Please see attached the Semi Annual EMR for the period Jul-Dec 2018 for your perusal and further necessary action.

regards,
Nell Vasa
Dy. Program Director
SIPMIU Kohima



Soft copy recd 31.01.19.

Semi Annual Environmental Monitoring Report

Loan Number: 2528 IND
Reporting Period: July – December 2018

INDIA: North Eastern Region Capital Cities Development
Investment Program (Tranche -1)
Project City: Kohima, Nagaland State

Implementing Agency: State Investment Program Management and Implementation Unit
Executing Agency: Urban Development Department, Government of Nagaland

December 2018
Kohima

ABBREVIATIONS

ADB	- Asian Development Bank
BTA	- Bridging Technical Assistance
CC	- Construction Contractor
DoC	- Date of Completion
DoS	- Date of Start
DSMC	- Design, Supervision and Management Consultant
EA	- Executing Agency
EARP	- Environmental Assessment & Review Procedure
EHS	- Environment, Health and Safety
EIA	- Environmental Impact Assessment
EMR	- Environmental Monitoring Report
EO	- Environmental Officer
ES	- Environmental Specialist
Gol	- Government of India
IA	- Implementing Agency
IEE	- Initial Environmental Examination
IPCC	- Investment Program Coordination Cell
MFF	- Multi-tranche Financing Facility
MoEF	- Ministry of Environment and Forests
MLD	- Million Liters per Day
MoUD	- Ministry of Urban Development
NEA	- National Executing Agency
NERCCDIP	- North Eastern Region Capital Cities Development Investment Program
NSC	- National level steering committee
O&M	- Operation & Maintenance
PD	- Program Director
PPTA	- Project Preparatory Technical Assistance
RCC	- Reinforced Cement Concrete
SEA	- State level Executing Agency
SIPMIU	- State Investment Program Management and Implementation Unit
SWM	- Solid Waste Management
UDD	- Urban Development Department
SEIAA	- State Environmental Impact Assessment Authority

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I. INTRODUCTION

A. Background

1. North Eastern Region Capital Cities Development Investment Program (NERCCDIP) is being undertaken for improvement of existing infrastructure, environmental quality and access to basic urban services of Kohima Municipal Council area. The NERCCDIP's objective is to improve the urban environment and promote reforms for sustainable, efficient, and responsive urban service delivery. The Program components are Water supply and Solid Waste Management infrastructure.

2. With an overall objective of sustainable urban development, the NERCCDIP is being implemented in the five capital cities – Agartala, Gangtok, Aizawl, Kohima and Shillong. NERCCDIP will be implemented over an eight-year period beginning in 2009, and is funded by a loan via the Multi-tranche Financing Facility (MFF) of the Asian Development Bank (ADB).

3. In Kohima, capital city of Nagaland, the Executing Agency (EA) for the program is the Urban Development Department (UDD) of the Government of Nagaland (GoN); and the Implementing Agency (IA) is the State-level Investment Program Management and Implementation Unit (SIPMIU), created within the UDD, specifically for the Investment Program implementation. At central level an Investment Program Co-ordination Cell (IPCC) is established in MOUD. IPCC is responsible for overall management of the Investment Program and is supported by Program Management & Monitoring Consultants (PMMC). M/s CDM Smith India Private Limited (Formerly Wilbur Smith Associates) had been engaged as the Design, Construction Supervision & Management Consultant (DSMC) for this City from 2009 December till the end of 2017 April. Subsequently M/s Rodic Consultants Pvt Ltd has taken over charge as DSMC from 10th May 2017 onwards.

4. Two subprojects were taken up in Kohima under Tranche-1, one in water supply sector and the other in the SWM sector. The solid waste management subproject has been completed and the facility is now in operation. Similarly, the water supply sub project is also completed and commissioned. Both the sub projects have been classified as Category B as per the ADB Environmental Policy, and accordingly Initial Environmental Examination (IEE) reports were prepared during PPTA/BTA and they were approved by the ADB.

5. Changes in location of some water tanks were proposed in the water supply sub project during implementation. Subsequent on this, the IEE including Environmental Monitoring Plan was updated to address the changes in the location of tanks. The updated IEE was approved by ADB in December, 2013. The solid waste management sub project was implemented as a design, build, operate and transfer project. Some additional works were proposed as part of this sub project. Therefore, IEE including EMP was updated and it was approved by ADB in December 2013. The additional works for construction of retaining walls, step drain and road restoration were awarded as three contracts under Tranche-1. All these additional works were completed by May 2016. However, few more additional works proposed at the SWM site were not approved by MoUD in Tranche-1 and they have been proposed as a new subproject in tranche-2, for which a separate IEE has been prepared. The sub projects in Tranche-1 were screened using ADB checklist for any change in scope and it was found that re-categorization of the sub projects is not required.

6. An Environmental Monitoring Plan which addresses the potential impacts and risks identified through environmental assessment has been included in the IEE reports. The complexity of EMP, as well as the subsequent priority of the identified measures & actions, will commensurate with the Project's impacts and risks. The EMP is part of bidding and contract documents. The EMPs were updated as part of the updated IEEs incorporating the changes in the sub projects.

The updated EMPs were issued to the Contractors and the updated IEEs were disclosed in the SIPMIU website (<http://sipmiunagaland.com/Downloads.html>).

B. Project Profile

7. As mentioned above, two subprojects under Tranche-1 (Loan No. 2528 IND) were under implementation in Kohima focusing on water supply improvements and solid waste disposal facilities.

8. The scope of water supply subproject (Contract package no: KHM-WA 1) covered (i) Construction of 18 ground level RCC water storage tanks (service reservoirs) and (ii) Refurbishment of an existing water treatment plant. All civil works under the water supply sub project were completed in 2014.

9. The solid waste management subproject (Contract package no: KHM-SWM 1) covers design, build, operation and transfer of a sanitary land fill, compost plant as well as infrastructures like Administrative building, Vehicle garages, Toilet Blocks, Security house, Weighbridge & Control room and internal / access roads.

10. The Additional Works under Tranche-1 include the following: (i) Construction of Retaining Walls No:1, No:4, No:5 & No:6 at the SWM site at Lerie in Kohima (package no: KHM- SWM 3); (ii) Construction of Retaining Walls No:7, No:8 & No:9 at the SWM site at Lerie in Kohima (package no: KHM-SWM 4) and (iii) Construction of 8 retaining walls, Road Restoration, and Construction of one step drain (variation to package no: KHM-SWM 1).

11. Details of the project activities under Tranche-1 (Loan No. 2528 IND) as of December 2018 are presented in the following Table.

Table 1. Sub Project Details under Tranche-1 (Loan No. 2528 IND)

Sl. no	Name of Work & Location	Description	Changes, if any, from approved scope
1	Refurbishment of Kohima water supply scheme (package no: KHM-WA1) Location: Spread over Kohima Municipal Council	Construction of 18 ground level RCC tanks (service reservoirs) and rehabilitation of the Water Treatment Plant	Locations of 8 ground level service reservoirs were changed and hence the IEE report was updated and it was approved by ADB in December 2013. Implementation of this Contract Package has been completed
2	Civil works and procurement of equipment for development of sanitary landfill, compost plant, leachate treatment plant and associated infrastructure (package no: KHM-SWM 1) Location: At SWM site, Lerie, Kohima	Design, build, operate and transfer of a scientific SWM Facility for Kohima	Some additional works were proposed at the SWM site and hence the IEE report was updated and it was approved by ADB in December 2013. The additional works for construction of retaining walls, step drain and road restoration were awarded as three contracts under Tranche-1. Implementation of this Contract Package has been completed. Now the Facility is under 3 year O&M phase for 3 years by the Contractor from March 2016. However, other additional works proposed at the SWM site were not approved by MoUD in Tranche-1 and they have been proposed as a new subproject in tranche-2, for which a separate IEE has been prepared.
Additional Works under Tranche-1			
1	Construction of Retaining Walls No:1, No:4, No:5 and	Construction of four retaining walls for	Nil. Implementation of this Contract Package has been completed.

Sl. no	Name of Work & Location	Description	Changes, if any, from approved scope
	No:6 at the SWM site at Lerie in Kohima (package no: KHM- SWM 3) Location : At SWM site, Lerie, Kohima	slope stabilization	
2	Construction of Retaining Walls No:7, No:8 and No:9 at the SWM site at Lerie in Kohima (package no: KHM-SWM 4) Location: At SWM site, Lerie, Kohima	Construction of 3 retaining walls for slope stabilization	Nil. Implementation of this Contract Package has been completed.
3	Construction of 8 retaining walls, Road Restoration, and Construction of one step drain (variation to package no: KHM-SWM 1) Location : At SWM site, Lerie, Kohima	Construction of 8 retaining walls for slope stabilization, restoration of road damaged due to landslide; and construction of a step drain for storm water from the access road	Nil. Implementation of this Contract Package has been completed.

12. Civil works of water supply sub project under Tranche-1 commenced in December 2011 and the estimated duration of works was 18 months. This sub project was originally for the construction of 18 ground level rectangular RCC tanks and refurbishment of the 40-year-old water treatment plant of Kohima water supply system. During implementation, there was difficulty in starting works at 8 tank sites due to severe space constraint & accessibility (at 7 sites) or non-availability of land (at one site). Hence, it was decided to re-locate these 8 tanks to 4 new sites to resolve the problem. Repair and renovation of existing RCC tank / clarifier at Assam Rifles compound was also included as an additional work in the sub project (This proposal was not approved by MoUD and hence not executed). In addition to the construction of tanks at the newly identified sites, small distribution tanks had to be constructed at the original locations having constraints for construction. Hence, the IEE report was updated and it was approved by ADB in December 2013. Construction of 17 tanks has been completed and commissioned in 2014. Construction of the tank at Assam Rifles HQ has been removed from the scope of the Contractor due to non-availability of land and it has been shifted to tranche 2. Refurbishment of the Water Treatment Plant has also been completed and the Plant has been commissioned in 2014. Installation of two new electro chlorinators and some minor works as part of refurbishment of the Water Treatment Plant were completed in 2015. The Refurbished Water Supply Scheme comprising the (i) 17 Water Tanks and (ii) The WTP at Jotsoma are now taken care of by PHED. No activities had been undertaken by SIPMIU during this reported period of July-December 2018.

13. Works of the solid waste management sub project under Tranche-1 commenced in January 2012 and the estimated duration of works was 24 months. The works were completed in all respects and the SWM facility altogether was commissioned after the stipulated duration of trial run on 29.02. 2016. Three-year Operation & Maintenance O&M of the SWM facility is also under the scope of the Contract and accordingly, the Contractor had started the O&M from 01.03.2016 onwards.

14. Additional infrastructure were proposed at the SWM site such as, (i) A 70 mm Trommel unit for pre-sorting of Municipal Solid Waste along with ancillaries for shredding, pressing and packing (ii) Provision of basic amenities such as canteen, barracks and separate toilet block for

males & females, (iv) Retaining walls at 5 locations to control landslide and to develop a Y junction on the access road to SWM site and (v) One step-drain and two culverts for the control of storm water over flow from the approach road drain to the farm lands below. Hence, the IEE report was updated and it was approved by ADB in December 2013. Later, due to heavy rain induced landslides, the approach road was damaged and retaining walls were required at more locations. Hence, the additional works for construction of retaining walls, step drain and road restoration were awarded as three contracts under Tranche-1. All these additional works were of short duration of three months and were completed by May 2016. However, other additional works proposed at the SWM site were not approved by MoUD in Tranche-1 and these have been proposed as a new subproject in tranche-2, for which a separate IEE has been prepared.

15. The Semi-Annual Environmental Monitoring Report presents the status of sub project implementation, details of compliance with environmental regulations of the Government and policies of ADB, details of compliance with environmental loan covenants, details of complaints received and their redressal and the status of compliance with various aspects of EMP as stated in the IEE reports.

16. Monitoring of compliance with EMP is a continuous activity carried out by the DSMC and SIPMIU. Guidelines on general construction EHS measures to be followed / implemented have been issued to the Contractor. A reporting format to be filled up by the Assistant Resident Engineer of DSMC on a monthly basis on compliance with EMP has been issued. These monthly reports form part of the Semi-Annual Environmental Monitoring Reports. However, since no construction activities were carried out during this reporting period of July to December 2018, the prescribed monthly reports were not prepared. This is the consolidated report on implementation of Environmental Management Plan (EMP) from July to December 2018 and is prepared in compliance with the ADB Policies.

II. ENVIRONMENTAL ASSESSMENT AND REVIEW PROCEDURE

A. Environmental Legal Requirements

17. The following Regulations are currently in force in India that deals with environmental issues that could apply to infrastructure development. Acts and Rules related to monuments and archeological sites are also listed herein.

- (i) The Water (Prevention and Control of Pollution) Act, 1974, amended 1988
 - The Water (Prevention & Control of Pollution) Rules, 1975
- (ii) The Air (Prevention & Control of Pollution) Act 1981, amended 1987
 - The Air (Prevention & Control of Pollution) Rules, 1982
- (iii) The Environment (Protection) Act, 1986, amended in 1991 and including the following Rules/Notification issued under this Act
 - The Environment (Protection) Rules, 1986, including amendments
 - Plastic Waste Management Rules, 2016
 - E-Waste (Management) Rules, 2016
 - Bio-Medical Waste Management Rules, 2016
 - Construction and Demolition Waste Management Rules, 2016
 - Hazardous & Other Wastes (Management & Transboundary Movement) Rules, 2016
 - Solid Waste Management Rules, 2016
 - Noise Pollution (Regulation and Control) Rules, 2000
 - Environmental Impact Assessment Notification, 2006
 - Environmental Standards of Central Pollution Control Board (CPCB)
- (iv) The Indian Wildlife (Protection) Act, 1972, amended 1993
 - The Wildlife (Protection) Rules, 1995
- (v) The Indian Forest Act, 1927
- (vi) Forest (Conservation) Act, 1980, amended 1988

- Forest (Conservation) Rules, 1981 amended 1992 and 2003
 - Guidelines for Diversion of Forest Lands for Non-Forest Purpose under the Forest (Conservation) Act, 1980
- (vii) Ancient Monuments and Archaeological Sites and Remains Act 1958
- Ancient Monuments and Archaeological Sites and Remains Rules 1959
 - Government of India Notification of 1992 under the above-stated Rules

B. Compliance with Environmental Regulations

18. The GoI EIA Notification of 2006 sets out the requirement for Environmental Assessment in India. The Tranche-1 water supply improvement subproject does not fall under the ambit of the EIA Notification, and therefore does not require environmental clearances. However, the Tranche-1 water supply subproject required consent to establish and operate under the Water Act and Air Act from the State Pollution Control Board.

19. The Tranche-1 Solid Waste Management subproject required environmental clearance under the EIA Notification from Nagaland State EIA Authority. The Tranche-1 Solid Waste Management subproject further required authorization under the Hazardous Wastes (Management and Handling) Rules, 1989 (now Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016) and Municipal Solid Waste (Management and Handling) Rules 2000 (now Solid Waste Management Rules, 2016) and consents to establish and operate under the Air and Water Acts from the State Pollution Control Board.

20. No other environmental or forest clearances are required for the subprojects in Kohima.

21. The following Table shows the regulatory requirements of subproject/components under Tranche-1 and the present status of compliance. Copy of Consent to Establish for the water supply sub project is presented as **Appendix 1**. Copy of Environmental Clearance for Solid Waste Management subproject is presented as **Appendix 2**. Copy of Consent to Establish and Authorization for Solid Waste Management subproject is presented as **Appendix 3(a)**. Copy of Consent to Operate for SWM subproject is presented as **Appendix 3(b)**.

Table 2: Status of Environment & Forest and Other Clearances

Contract Package	Applicable Legislation / Type of Clearance	Nature of Clearance and date of issue	Conditions	Remarks / Action needed
1. Refurbishment of Kohima water supply scheme (KHM-WA 1)	Consent to establish under Water Act	Consent to Establish has been issued by Nagaland Pollution Control Board vide Consent no. 203 dated 07.07.2009.	1. The Consent is valid for establishing a WTP, Jotsoma, Kohima 2. The applicant shall ensure environmentally sound management practices 3. The applicant shall submit the analysis report of the treated water sample while applying for Consent to Operate 4. The applicant shall apply for Consent to Operate before operation of the plant. 5. The Consent is liable to be cancelled if terms & conditions are not implemented	1. No action needed 2. EMP was implemented. 3. Application submitted by PHED for Consent to Operate (SIPMIU had handed over the refurbished WTP to PHED) 4. Application has been submitted. (This issue is now under the discretion of PHED) 5. No chance of violation of terms & conditions by PHED

Contract Package	Applicable Legislation / Type of Clearance	Nature of Clearance and date of issue	Conditions	Remarks / Action needed
2.Civil works and procurement of equipment for development of sanitary land fill, compost plant and internal access (KHM-SWM 1)	Environmental clearance under the EIA Notification 2006	Application for Environmental Clearance (EC) was submitted to Nagaland State EIA Authority. Since clearance was not issued by the EIA Authority within the time period specified in the EIA Notification, Government of Nagaland has granted deemed approval of the EC vide letter no. UDD/19-ADB/02/ 2009 dated 28.10.2011 as per the provisions of EIA Notification 2006.	No conditions	No action needed
	Consent to Establish under Air and Water Acts and authorization to setup landfill and compost plant under the MSW (Management and Handling) Rules 2000 & Hazardous Wastes (Management & Handling) Rules 1989	Consent to Establish and Authorization to set up landfill and compost plant has been issued by Nagaland Pollution Control Board vide consent no. 202 dated 07.07.2009.	1. The consent is valid for establishing a SWM Facility at Lerie, Kohima 2. The applicant shall ensure environmentally sound management practices 3. The applicant shall ensure that SWM facility will be taken up as per the DPR and MSW Rules. 4. The applicant shall apply for consent to operate before operation of the facility. 5. The consent is liable to be cancelled if terms and conditions are not implemented	1. No action needed 2. EMP was implemented 3. Complying with MSW rules. Any changes in design will be intimated to PCB. 4.. Consent to Operate has been received on 15-02-2018 vide Appendix 3 (b) 5. No violation of terms and conditions
Additional Works under Tranche-1				
1.Construction of Retaining Walls No:1, No:4, No:5 and No:6 at the SWM site at Lerie in Kohima (package no: KHM-SWM 3)	Not Applicable	Not Applicable	Not Applicable	Not Applicable
2.Construction of Retaining	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Contract Package	Applicable Legislation / Type of Clearance	Nature of Clearance and date of issue	Conditions	Remarks / Action needed
Walls No:7, No:8 and No:9 at the SWM site at Lerie in Kohima (package no: KHM-SWM 4)				
3.Construction of 8 retaining walls, Road Restoration, and Construction of one step drain (variation to package no: KHM-SWM 1)	Not Applicable	Not Applicable	Not Applicable	Not Applicable

C. Compliance of Environmental Loan Covenants

22. Table 3 shows the environmental safeguard related loan covenants and their compliance status in implementation. All the covenants are being complied in implementation.

23. The water supply and solid waste management subprojects of Tranche-1 have been classified as Category B as per the ADB Environmental Policy. Accordingly, IEE reports were prepared during PPTA/BTA and were approved by the ADB. During the implementation of water supply sub project, there was a change in the location of eight ground level service reservoirs. Hence, an updated IEE report was prepared and it was approved by ADB in December 2013. Similarly, for the solid waste management subproject, some additional infrastructures were proposed and hence, an updated IEE report was prepared and it was approved by ADB in December 2013. The additional works for construction of retaining walls, step drain and road restoration were awarded as three contracts under Tranche-1. However, other additional works proposed at the SWM site were not approved by MoUD in Tranche-1 and they have been proposed as a new subproject in tranche-2, for which a separate IEE has been prepared.

Table 3: Compliance Status of Environmental Loan Covenants

Project Specific Covenants	Status / Issues
GOI and the States will ensure that the design, construction, operation and implementation of all sub-project facilities is carried out in accordance with the environmental assessment & review procedures and Initial Environmental Examinations (IEEs) for core sub-components agreed upon between the Government & ADB, and complies with the Government's environmental laws and regulations and ADB's Environment Policy (2002).	IEE approved by ADB, disclosed in public (http://sipmiunagaland.com/Downloads.html), and included in bid document and contract.
Any adverse environmental impacts arising from the construction, operation and implementation of sub-component facilities will be minimized by implementing the environmental mitigation and management measures, and other recommendations specified in environmental assessment reports (e.g., IEEs). The Government will ensure environmental requirements will be incorporated in bidding documents and civil works contracts. Issuance of bid documents will be made after review and clearance of IEE/EIA by ADB and SEIAA or MoEF.	Clearances obtained as per applicable regulations.
Gol will prepare and submit annually to ADB an environmental monitoring report that describes progress in implementation of the EMP and EARP and issues encountered & measures adopted; and compliance with the relevant assurances and loan covenants	Semi-annual environmental monitoring report is being submitted to ADB

D. Environmental Organization and Management

24. The main agencies involved in managing and implementing the subproject are:

- (i) Ministry of Urban Development (MoUD) - The national-level Executing Agency (NEA) for the Investment Program;
- (ii) Investment Program Coordination Cell (IPCC) - It is established in MOUD. IPCC is responsible for overall management of the Investment Program in the 5 cities. It comprises of social/environmental safeguard specialists whose tasks include monitoring Program implementation and reviewing and screening the subprojects submitted by the States in accordance with subproject selection criteria, in accordance with the environmental provisions;
- (iii) State Investment Program Management and Implementation Unit (SIPMIU)-It is established under the State Government and headed by a Program Director (PD). SIPMIU will oversee the implementation of the sub projects as per the Program's environment and resettlement planning. This includes the preparation of all documentation needed for decision-making, contracting, and supervision of work, providing progress-monitoring information as well as the compliance of all environmental safeguards.

The SIPMIU comprises of a Safeguards and Social Cell staffed with an Environmental Officer (EO). The EO is responsible for implementing the environmental safeguard provisions in the project including (i) ensuring environmental criteria for subproject selection in the EARP, (ii) ensuring mitigation requirements in the Bid documents and (iii) liaising with various Central and State government agencies on compliance matters. The SIPMIU will appoint and manage Construction Contractors (CC) to build elements of the infrastructure who are required to submit Environmental Implementation Plans (EIPs) to SIPMIU approval.

- (iv) Design, Construction Supervision and Management Consultant (DSMC) - The SIPMIU is assisted by the DSMC, who is responsible for the design of the infrastructure, manage tendering of contracts, and supervise the construction process;

An Environmental Specialist (ES) in the DSMC is responsible for addressing the environmental issues in the project components during design and implementation. The ES will ensure that all mitigation requirements are in the bidding documents and EIPs, and will supervise the effective implementation of environmental provisions during construction. In addition, the ES will assist the SIPMIU on the procurement needs and other project implementation aspects and shall play a central role in ensuring capacity building on environmental management of the SIPMIU, the Contractor and the Line Departments through capacity development support and training.

25. No grievances were received during the reporting period. A grievance redressal mechanism has been established. Grievances of affected persons will first be brought to the attention of the SIPMIU. Grievances not redressed by the SIPMIU will be brought to the Independent Grievance Redress Committee (IGRC) set up to monitor project implementation in Kohima. The GRC will determine the merit of each grievance and resolve grievances within 10 days of receiving the complaint. Grievance not redressed by the IGRC will be referred to the appropriate courts of law. The DSMC will keep records of all grievances received including: contact details of complainant, date that the complaint was received, nature of grievance, agreed corrective actions and the date these were affected, and the final outcome. The IGRC was constituted vide SIPMIU notification dated 18.01.2013. Details of grievance redressal mechanism and the IGRC notification for the sub projects are presented as **Appendix 4**.

III. EMP COMPLIANCE STATUS

26. This section presents the compliance status of Environmental Management and Monitoring Plans of tranche-1 subprojects under implementation.

27. Under the water supply subproject, no civil works were carried out during the reporting period because the Contractor had completed all the civil works as per the revised scope of work in 2014 itself. Installation of two new electro chlorinators and some minor works as part of refurbishment of the old water treatment plant at Jotsoma were completed in 2015. Under the solid waste management subproject, the civil works and procurement of equipment for development of sanitary land fill, compost plant and internal access etc were completed in 2016. The Contractors were following the Environmental Monitoring Plan (EMP), which is part of the IEE and Contract document. The Contractors had not prepared any Environmental Implementation Plan. Alternatively, the Contractors were following the guidelines on general construction EHS measures issued to them. The EMPs were modified as part of the IEEs updated incorporating the changes in the subprojects and the modified EMPs were issued to the Contractors. A reporting format to be filled up by the Assistant Resident Engineer of DSMC on a monthly basis in compliance with EMP was issued. These Monthly EMP Implementation Review Reports were included in the previous Semi Annual Environmental Monitoring Reports. Since all the works have been completed, monthly reports were not prepared during the current reporting period.

28. Civil works for the 4 additional works at the SWM site under Tranche-1 ie (i) Construction of Retaining Walls No:1, No:4, No:5 & No:6, (ii) Construction of Retaining Walls No:7, No:8 & No:9 (iii) Construction of 8 retaining walls, Road Restoration and (iv) Construction of one step drain; were of simple nature and short duration of three months and hence monthly EMP Implementation Review Reports were not prepared for these works. All these works were completed by May 2016. Compliance to EMP for these additional works had been ensured by the Assistant Resident Engineer of DSMC.

29. Air quality, noise level, ground water quality, surface water quality, and soil quality monitoring through a third party was conducted by the SWM Contractor during the reporting period. Monitoring results of all the parameters were within the standards. The SWM Facility is now under O&M phase and the results of routine monitoring conducted during the reporting period is attached as **Appendix- 5**

IV. OBSERVATIONS, RECOMMENDATIONS AND ACTIONS TAKEN

30. As presented in this report, tranche-1 of this Investment Program had been implemented in compliance with the loan covenants, subproject selection criteria and overall EARF. There were some non-compliant EMP activities noticed in the previous monitoring reports regarding the solid waste management sub project. The SWM subproject Contractor had not prepared a construction site management plan. To compensate this, guidelines on general EHS measures to be followed at construction sites were issued to the Contractor. These included measures to exclude public from all construction sites. Compliance to these measures was being strictly monitored by the DSMC. Health and safety training was given to the Contractor's Supervisors by the ES of DSMC. The Contractor had repeated the health and safety training to all their personnel. The Contractor was not spraying water regularly for dust suppression in the construction site. The Contractor had not maintained an Accident Report register. Instruction was given to the Contractor to spray water for dust suppression and maintain an Accident Report Register. The Contractor had provided caution boards and information boards at the work site. No accidents were reported during the construction period. No environmental monitoring was conducted by the Contractor during the reporting period as no construction works were in progress.

31. Necessary instructions were given to the Contractor by DSMC/SIPMIU to specifically focus on safety aspects, training to their staff, and in general on EMP measures to improve the compliance.

32. The additional works including construction of retaining walls and construction of one step drain were of short duration of three months and compliance to EMP for these additional works were ensured by the Assistant Resident Engineer of DSMC.

33. Now, the SIPMIU & DSMC are jointly monitoring the O&M works carried out by the Contractor. The quality of (i) Leachate (ii) Ground water (deep & shallow) and (iii) Compost Manure are tested periodically in the laboratory attached to the SWM Facility. The test results during the reporting period (July to December 2018) are attached as **Appendix: 5**. The EMP Compliance during O&M phase of the SWM Facility for the reporting period is attached as **Appendix: 6** and few photographs are attached as **Appendix: 7**

APPENDICES

Appendix 1: Consent to Establish for Water Supply Sub Project from Nagaland Pollution Control Board

NAGALAND POLLUTION CONTROL BOARD SIGNAL POINT : DIMAPUR: NAGALAND	
<u>Consent Order / Authorization</u>	
Consent No. 203	Dated 07.07.2009
<p>Consent to Establish under Section 25/ 26 of the Water (Prevention & Control of Pollution) Act, 1974, as amended and under Section 21 of the Air (Prevention & Control of Pollution) Act, 1981, as amended to be referred as Water Act and Air Act respectively.</p> <p>Consent is granted to State Investment Program Management and Implementation Unit, Asian Development Bank, (ADB) Assisted Project Kohima, Nagaland, located in the area declared under the provisions of the Water Act & Air Act and subject to the provisions of the Act and the Rules and the Orders that may be made further and subject to the following terms and conditions:-</p> <ol style="list-style-type: none">1. The Consent is valid for: Establishing a Water Treatment Plant, Jotsoma, Kohima, Nagaland.2. The applicant shall also ensure environmentally sound management practices by taking necessary steps to protect health and environment against adverse effects which may result from the plant.3. The applicant shall submit the analysis report of the treated water sample from a recognized laboratory while applying for consent to operate.4. The applicant shall apply for Consent to operate for the Unit before the operation of the Plant.5. The Consent/Authorization is liable to be cancelled /revoked if the terms and conditions specified are not observed/ implemented. <div><div><p>07/07/09 Member Secretary</p><p>Member Secretary Nagaland Pollution Control Board Nagaland : Dimapur</p></div></div>	

Appendix 2: Environmental Clearance for SWM Sub Project

**GOVERNMENT OF NAGALAND
URBAN DEVELOPMENT DEPARTMENT**

NOTIFICATION

Dated Kohima, the 28th Oct.' 2011.

NO.UDD/19-ADB/02/2009 :: As provided in clause 8(iii) of the Environmental Clearance Notification, dated 14th September, 2006 of the Ministry of Environment and Forests, Government of India, the Governor of Nagaland is pleased to grant deemed approval of the Environmental Clearance for Solid Waste Management Project at Kohima under the ADB assisted NERCCDIP by the State Environmental Impact Assessment Authority (SEIAA) in terms with the recommendations of the State Expert Appraisal Committee (SEAC).

Sd/- NEIHU C. THUR, IAS
Secretary to the Govt. of Nagaland.

NO.UDD/19-ADB/02/2009
Copy to:-


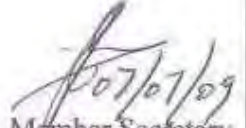
Dated Kohima, the 28th Oct.' 2011.

1. The Secretary to Governor of Nagaland, Raj Bhavan, Nagaland, Kohima.
2. The Addl. Chief Secretary to Chief Minister, Nagaland, Kohima.
3. The Sr. P.S to Minister, Urban Development, Nagaland, Kohima.
4. The OSD to Chief Secretary, Nagaland, Kohima.
5. The Secretary, Government of India, Ministry of Urban Development, Nirman Bhawan, New Delhi -110011. Fax: 011-23061459.
6. The Secretary, Government of India, Ministry of Environment & Forests, 104, New Moti Bagh, New Delhi - 110023. Fax: 011-24362746.
7. The Director, ADB, Urban Development and Water Division, South Asia Department, 6-ADB Avenue, Mandaluyong City, 1550 Metro Manila, Phillippines. Fax: 0632-636-2444.
8. The Commissioner & Secretary, Forest Department, Nagaland, Kohima.
9. The Chairman, State Environmental Impact Assessment Authority (SEIAA), Nagaland, Kohima.
10. The Principal Chief Conservator of Forest, Nagaland, Kohima.
11. *The Publisher, Nagaland Gazette, Kohima for kind publication in the next issue of the State Gazette.*
12. The Director, Urban Development, Nagaland, Kohima.
13. The Program Director, SIPMIU-ADB assisted project, Kohima.
14. Guard file/office copy.


(Ahola Those)

Joint Secretary to the Govt. of Nagaland.

Appendix 3(a) : Consent to Establish and Authorization for SWM Sub Project

NAGALAND POLLUTION CONTROL BOARD SIGNAL POINT : DIMAPUR: NAGALAND	
<u>Consent Order / Authorization</u>	
Consent No. 202	Dated 07.07.2009
<p>Consent to Establish under Section 25/ 26 of the Water (Prevention & Control of Pollution) Act, 1974, as amended and under Section 21 of the Air (Prevention & Control of Pollution) Act, 1981, as amended and Authorization/ Renewal of Authorization under Rule 5 of the Hazardous Wastes (Management & Handling) Rules, 1989 , as amended (to be referred as Water Act, Air Act and HW (M&H) Rules, respectively).</p>	
<p>Consent is granted to State Investment Program Management and Implementation Unit, Asian Development Bank, (ADB) Assisted Project, Kohima, Nagaland, located in the area declared under the provisions of the Water Act/ Air Act and authorization under the provisions of HW (M&H) Rules subject to the provisions of the Act and the Rules and the Orders that may be made further and subject to the following terms and conditions:-</p>	
<ol style="list-style-type: none"> 1. The Consent is valid for: Establishing a Solid Waste Management Facility at Lerie, Kohima, Nagaland. 2. The applicant shall also ensure environmentally sound management practices by taking necessary steps to protect health and environment against adverse effects which may result from the plant. 3. The applicant shall ensure that the Solid Waste Management Facility be taken up as per the DPR and shall comply with the standards and terms & conditions as laid down in the Municipal Solid Waste (Management & Handling) Rules, 2000. 4. The applicant shall apply for Consent to operate for the Unit before the operation of the facility. 5. The Consent is liable to be cancelled /revoked if the terms and conditions specified are not observed/ implemented. 	
	 Member Secretary Nagaland Pollution Control Board

Appendix 3(b) Consent to Operate for SWM Sub Project from Nagaland Pollution Control Board



NAGALAND POLLUTION CONTROL BOARD
SIGNAL POINT DIMAPUR NAGALAND

Consent Order / Authorization

Authorisation No. 202 **Dated 15/02/2018**

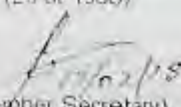
Authorization is hereby granted to M/s. State Investment Programme Management and Implementation Unit, Asian Development Bank (ADB)-Assisted Project, Kohima, Nagaland under Solid Waste Management Rules, 2016, to operate Solid Waste Management Facility at Lerie Colony, Kohima, Nagaland

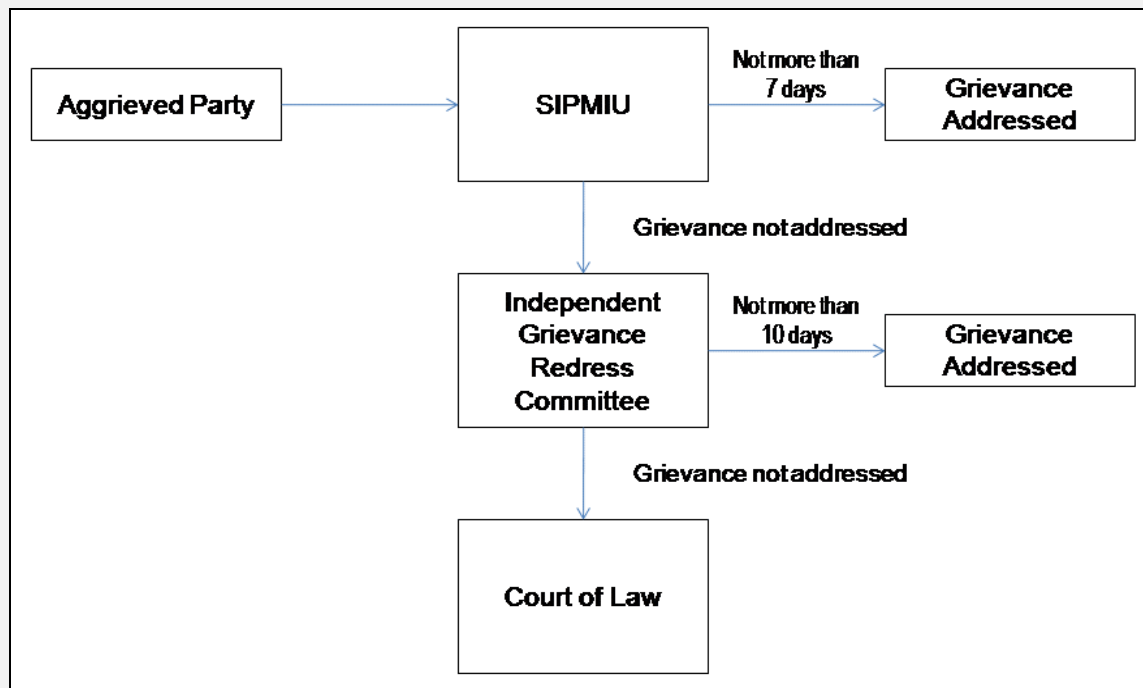
The authorisation is granted to operate the facility for processing, recycling, treatment and disposal of solid waste

The authorisation is subject to the terms and conditions stated below and such conditions as may be otherwise specified in these rules and the standards laid down in Schedules I and II under these rules

- 1 The Consent is granted for a period up to 15/02/2019.
- 2 The Consent is valid for:
Operating a Solid Waste Management Facility
- 3 The applicant shall ensure that no adverse impact on the air, soil and water including groundwater takes place due to activities
- 4 Growing of green belt along the periphery.
- 5 The applicant shall also ensure environmentally sound management practices by taking necessary steps to protect health and environment against adverse effects which may result from the facility.
- 6 The applicant shall renew the authorization at least one month before the expiry of the validity period
- 7 The Nagaland Pollution Control Board may, at any time, revoke any of the conditions applicable under the authorisation and shall communicate the same in writing.

Any violation of the provision of the Solid Waste Management Rules, 2016 will attract the penal provision of the Environment (Protection) Act, 1986 (29 of 1986)


(Member Secretary)
 Member Secretary
 Nagaland Pollution Control Board
 Nagaland

Appendix 4: Grievance Redressal Mechanism

**STATE INVESTMENT PROGRAMME MANAGEMENT AND IMPLEMENTATION UNIT
ASIAN DEVELOPMENT BANK (ADB) – ASSISTED PROJECT
KOHIMA : NAGALAND**

NOTIFICATION

Dated Kohima, the 18th January 2013

NO.SIPMIU/SCL/CP/2011:: In pursuance to Asian Development Bank (ADB) guidelines; the Independent Grievance Redress Committee (IGRC) is hereby constituted to address the grievances of persons affected due to the sub-projects implemented in Kohima under the ADB assisted North Eastern Region Capital Cities Development Investment Program.

- | | | |
|--|---|------------------|
| i. Program Director, SIPMIU | = | Chairman |
| ii. Addl. Program Director, SIPMIU | = | Member Secretary |
| iii. Dy. Program Director/ Environment Officer, SIPMIU | = | Member |
| iv. Sociologist, SIPMIU | = | Member |
| v. Assistant Engineer, SIPMIU | = | Member |
| vi. Team Leader, DSMC | = | Member |
2. The IGRC shall determine the merit of each grievance and resolve the grievance/s within 10 (ten) days of receiving the complaint.
 3. Grievances not redressed by the IGRC will be referred to the appropriate court of law.
 4. All costs involved in resolving the grievances shall be borne by SIPMIU.
 5. The Design Supervision & Management Consultants shall keep records of all grievances received including contact details of complainant, date the complaint was received, nature of grievance, agreed corrective actions and the date of redressing the grievance and the final outcome.

Sd/-
K. HARALU
Program Director

NO.SIPMIU/SCL/CP/2011

Dated Kohima, the 18th January 2013

Copy to:

- i) The Commissioner & Secretary, Urban Development Department, Nagaland, Kohima for information.
- ii) The Director, Urban Development, Nagaland, Kohima for information.
- iii) The Chief Engineer, PHE, Nagaland, Kohima for information.
- iv) The CEO, Kohima Municipal Council, Kohima, Nagaland for information.
- v) All the members
- vi) Office copy


(NELL VASA)
Dy. Program Director

Appendix 5: Laboratory Test Reports

1. COMPOST MANURE ANALYSIS REPORT

KOHIMA SOLID WASTE MANAGEMENT FACILITY, NAGALAND

COMPOST ANALYSIS REPORT

Date of sampling	: 22/8/2018	Sample collected by	: Laboratory
Sample Ref. No.	: Com/08/18	Sampling Location	: Compost Storage Yard
Date of Analysis Started	: 22/8/2018	Sample Location ID	: Com/finish/lote-1
Date of Analysis completed	: 24/8/2018	Sample Type	: Stock (LoteSample)
Sampling Frequency	: --	Sample Analysed by	: ShatrudhanPanday

TEST RESULTS

S.No.	Parameters	Analytical Methods	Standard as per FCO	Results
1.	Moisture, percent by Weight	FCO	15.0 - 25.0	20.15%
2.	Colour	FCO	Dark Brown to Black	Dark Brown
3.	Odour	FCO	Absence of Foul Odour	Agreeable
4.	Particle Size	FCO	Minimum 90% Material should pass through 4.0 mm IS sieve	OK
5.	Bulk Density (g/cm ³)	FCO	<1.0	0.86
6.	Total Organic Carbon, percent by Weight, minimum	FCO	12.0	14.10%
7.	Total Nitrogen (as N), percent by Weight, minimum	FCO	0.8	1.05%
8.	Total phosphate (as P ₂ O ₅), percent by Weight, minimum	FCO	0.4	0.74%
9.	Total Potash (as K ₂ O), percent by Weight, minimum	FCO	0.4	0.78%
10.	C:N ratio	FCO	<20.0	13.42
11.	pH	FCO	6.5 - 7.5	7.3
12.	Conductivity (as dsm ⁻¹), not more than	FCO	4.0	3.7

Note:

1. This Report refers only to the sample tested.
2. Any corrections invalidate this Report.



2. GROUND WATER ANALYSIS REPORT

KOHIMA SOLID WASTE MANAGEMENT FACILITY, NAGALAND

GROUND WATER ANALYSIS REPORT

Date of sampling	: 10/12/2018	Sample collected by	: Laboratory
Sample Ref. No	: GW-01/Dec/2018	Sampling Location	: Near Office Building
Date of Analysis Started	: 10/12/2018	Sample Location ID	: GW-01
Date of Analysis completed	: 12/12/2018	Sample Type	: Grab Sample
Sampling Frequency	: Quarterly	Sample Analyses by	: Shatrudhan Panday

TEST RESULTS

S.No.	Parameters	Analytical Methods	IS :10500 limits	Results	Unit
I. Physical Parameters					
1.	Color	IS 3025 Part 04	5	Colorless	--
2.	Odor	IS 3025 Part 05	Agreeable	Agreeable	--
3.	Taste	IS 3025 Part 07 & 08	Agreeable	Agreeable	--
4.	pH	APHA (Part 4500-H ⁺ :B)	6.5 - 8.5	7.10	--
5.	Turbidity	APHA (Part 2130:B)	5	5	NTU
6.	Total Dissolved Solids (TDS)	APHA (Part 2540:C)	2000	325	mg/l
II. Chemical Parameters					
1.	Chlorides (as Cl)	APHA (Part 4500-Cl:B)	250	65	mg/l
2.	Nitrate (as NO ₃)	APHA (Part 4500-NO ₃ :B)	45	BDL	mg/l
3.	Sulphates (as SO ₄)	APHA (Part 4500-SO ₄ :E)	200	8	mg/l
4.	Total Alkalinity (as CaCO ₃)	APHA (Part 2300:B)	200	84	mg/l
5.	Total Hardness (as CaCO ₃)	APHA (Part 2340:C)	200	115	mg/l
6.	Calcium (as Ca)	IS 3025 Part 40	75	28	mg/l
7.	Magnesium (as Mg)	IS 3025 Part 46	30	13	mg/l
8.	Fluoride (as F)	IS 3025 Part 60	1.0	BDL	mg/l
9.	Oil & Grease	IS 3025 Part 39	0.5	ND	mg/l

- ND - Not Detected, BDL - Below detection level

Note:

Sampling & Analysis were done as per Standard Methods prescribed by BIS



3. LEACHATE ANALYSIS REPORT

KOHIMA SOLID WASTE MANAGEMENT FACILITY, NAGALAND LEACHATE ANALYSIS REPORT

Date of sampling	: 31/12/2018	Sample collected by	: Laboratory
Sample Ref. No	: L-12/2018	Sampling Location	: LTP
Date of Analysis Started	: 31/12/2018	Sample Location ID	: L-Holding Tank
Date of Analysis completed	:	Sample Type	: Aired Mix Sample
Sampling Frequency	: Monthly	Sample Analysed by	: Shatrudhan Panday

TEST RESULTS

S.No.	Parameters	Analytical Methods	Results			Standards for Inland Surface water	Unit
I.	Physical Parameters		Inlet (Raw Inlet)	Leachate after Primary treatment	Outlet (Permeate)		
1.	Color	Visual	Blackish	Colourless	--	Colourless	--
2.	Odor	--	Foul	Agreeable	--	Agreeable	--
3.	pH	APHA (Part 4500-H-8)	--	--	--	5.5-9.0	--
4.	Total Suspended Solids	APHA (Part 2540-D)	--	--	--	100	mg/L
5.	Total Dissolved Solids (TDS)	APHA (Part 2540-C)	--	--	--	2100	mg/L
II.	Chemical Parameters						
1.	Ammonical Nitrogen (as N)	APHA (Part 4500-NO ₃ -)	--	--	--	50	mg/L
2.	Total Kjeldahl Nitrogen (as N)	APHA (Part 4300-NO ₃ -)	--	--	--	100	mg/L
3.	Chemical Oxygen Demand	APHA (Part 5220-D)	--	--	--	250	mg/L
4.	Biochemical Oxygen Demand (5 Day at 20°C)	APHA (Part 5210-B)	--	--	--	30	mg/L
5.	Oil & Grease	IS 3025 Part 39	--	--	--	10	mg/L

ND: Not Done BDL: Below Detection Limit

Note:

1. This Report refers only to the sample tested, any corrections invalidate this Report.
2. The Outlet from Primary Treatment is having values less than the designed **INLET CHARACTERISTICS** for Secondary treatment, so it was used directly for maintaining moisture in Heaps
3. BOD (Biochemical Oxygen Demand) Not Test Because In Plant Electricity break Down.
4. Leachate not Available..

Shatrudhan Panday

4. MONITORING WELL ANALYSIS REPORT

Well No: 1

KOHIMA SOLID WASTE MANAGEMENT FACILITY, NAGALAND

MONITORING / TEST WELL ANALYSIS REPORT

Date of sampling	: 12/12/2018	Sample collected by	: Laboratory
Sample Ref. No	: MW-01/Dec/2018	Sampling Location	: Landfill - Upper Bund
Date of Analysis Started	: 12/12/2018	Sample Location ID	: MW-01
Date of Analysis completed	: 13/12/2018	Sample Type	: Grab Sample
Sampling Frequency	: Quarterly	Sample Analyses by	: Shatrudhan Panday

TEST RESULTS

S.No.	Parameters	Analytical Methods	IS :10500 limits	Results	Unit
I. Physical Parameters					
1.	Color	IS 3025 Part 04	5	Colorless	--
2.	Odor	IS 3025 Part 05	Agreeable	Agreeable	--
3.	Taste	IS 3025 Part 07 & 08	Agreeable	Agreeable	--
4.	pH	APHA (Part 4500-H ⁺ :B)	6.5 - 8.5	6.7	--
5.	Turbidity	APHA (Part 2130:B)	5	ND	NTU
6.	Total Dissolved Solids (TDS)	APHA (Part 2540:C)	2000	385	mg/l
II. Chemical Parameters					
1.	Chlorides(as Cl)	APHA (Part 4500-Cl:B)	250	60	mg/l
2.	Nitrate (as NO ₃)	APHA (Part 4500-NO ₃ :B)	45	BDL	mg/l
3.	Sulphates (as SO ₄)	APHA (Part 4500-SO ₄ ²⁻ :E)	200	9	mg/l
4.	Total Alkalinity (as CaCO ₃)	APHA (Part 2300:B)	200	90	mg/l
5.	Total Hardness (as CaCO ₃)	APHA (Part 2340:C)	200	130	mg/l
6.	Calcium (as Ca)	IS 3025 Part 40	75	31	mg/l
7.	Magnesium (as Mg)	IS 3025 Part 46	30	13	mg/l
8.	Fluoride (as F)	IS 3025 Part 60	1.0	BDL	mg/l
9.	Oil & Grease	IS 3025 Part 39	0.5	ND	mg/l

• ND - Not Detected, BDL - Below detection level

Note:

1. Sampling & Analysis were done as per Standard Methods prescribed by BIS.



4. MONITORING WELL ANALYSIS REPORT

Well No: 2

KOHIMA SOLID WASTE MANAGEMENT FACILITY, NAGALAND

MONITORING / TEST WELL ANALYSIS REPORT

Date of sampling	: 15/12/2018	Sample collected by	: Laboratory
Sample Ref. No	: MW-02/Dec/2018	Sampling Location	: Landfill – Lower Bund
Date of Analysis Started	: 15/12/2018	Sample Location ID	: MW-02
Date of Analysis completed	: 16/12/2018	Sample Type	: Grab Sample
Sampling Frequency	: Quarterly	Sample Analyses by	: Shatrudhan Panday

TEST RESULTS

S.No.	Parameters	Analytical Methods	IS :10500 limits	Results	Unit
I. Physical Parameters					
1.	Color	IS 3025 Part 04	5	Colorless	--
2.	Odor	IS 3025 Part 05	Agreeable	Agreeable	--
3.	Taste	IS 3025 Part 07 & 08	Agreeable	Agreeable	--
4.	pH	APHA (Part 4500-H ⁺ :B)	6.5 - 8.5	7.64	--
5.	Turbidity	APHA (Part 2130:B)	5	ND	NTU
6.	Total Dissolved Solids (TDS)	APHA (Part 2540:C)	2000	560	mg/l
II. Chemical Parameters					
1.	Chlorides (as Cl)	APHA (Part 4500-Cl:B)	250	45	mg/l
2.	Nitrate (as NO ₃)	APHA (Part 4500-NO ₃ :B)	45	BDL	mg/l
3.	Sulphates (as SO ₄)	APHA (Part 4500-SO ₄ ²⁻ :E)	200	6	mg/l
4.	Total Alkalinity (as CaCO ₃)	APHA (Part 2300:B)	200	106	mg/l
5.	Total Hardness (as CaCO ₃)	APHA (Part 2340:C)	200	132	mg/l
6.	Calcium (as Ca)	IS 3025 Part 40	75	34	mg/l
7.	Magnesium (as Mg)	IS 3025 Part 46	30	12	mg/l
8.	Fluoride (as F)	IS 3025 Part 60	1.0	BDL	mg/l
9.	Oil & Grease	IS 3025 Part 39	0.5	ND	mg/l

• ND – Not Detected , BDL – Below detection level

Note:

1. Sampling & Analysis were done as per Standard Methods prescribed by BIS



Appendix 6:EMP Compliance during O&M phase of the SWM Facility

MONTHLY ENVIRONMENTAL MONITORING REPORT																																	
Contract Package No: KHM- SWM1										Contractor : M/s Ramky Enviro Engineers Pvt. Ltd										DSM Consultant : M/s Rodic Consultants Pvt. Ltd													
Date of start of O&M : 01.03.2016										Reporting Month & Year										July 2018													
SL no	Mitigation Measures as per EMP	Daily Compliance Status																															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
1	Whether garbage vehicles are properly covered to avoid littering the roads?																																
2	Whether approach road to the site is kept free from debris,vegetation etc.?																																
3	Whether weight of each truck is recorded in the weigh bridge control room?																																
4	Whether garbage is delivered at designated locations in the compost plant building for segregating dry waste and further sorting?																																
5	Whether sorted & re-salable dry waste are properly bundled and stacked at designated locations in the compost plant building?																																
6	Whether windrows for composting are formed at the designated places of the compost plant building?																																
7	Whether inoculum is sprayed at intervals to speed up composting																																
8	Whether the decomposing waste in windrow is overturned periodically?																																
9	Whether windrows & stockpiles of manure are maintained properly to avoid																																

MONTHLY ENVIRONMENTAL MONITORING REPORT																																	
Contract Package No: KHM- SWMI					Contractor : M/s Ramky Enviro Engineers Pvt. Ltd															DSM Consultant : M/s Rodic Consultants Pvt. Ltd													
Date of start of O&M : 01.03.2016										Reporting Month & Year										July 2018													
Sl. no	Mitigation Measures as per EMP	Daily Compliance Status																															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
	growth of flies and other pests?																																
10	Whether dust suppression measures are taken in the plant building as well as the entire SWM facility?																																
11	Whether chemicals are available for spraying, incase if, fly control is found essential?																																
12	Whether all other non-biodegradable and non-marketable wastes are periodically cleared off the compost plant building and transferred to landfill ?																																
13	Whether toy guns or similar devices are available to chase away birds from the landfill area?																																
14	Whether freshly spread landfill portion is spread over with specified layer of soil and rolled over every day?																																
15	Whether the leachate underdrain pipe system is periodically scoured?																																
16	Whether vent pipes are positioned properly to diffuse out, the landfill gases continuously?																																


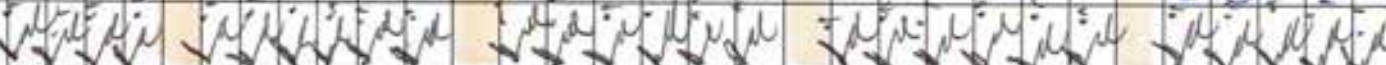
MONTHLY ENVIRONMENTAL MONITORING REPORT																																		
Contract Package No: KHM- SWM1					Contractor : M/s Ramky Enviro Engineers Pvt. Ltd															DSM Consultant : M/s Rodic Consultants Pvt. Ltd														
Date of start of O&M : 01.03.2016										Reporting Month & Year										July 2018														
Sl. no	Mitigation Measures as per EMP	Daily Compliance Status																																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
17	Whether odour in the entire site is reduced below offensive level?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
18	Whether entry of animals into the SWM facility is completely prevented?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
19	Whether (i) raw leachate and (ii) treated leachate are tested periodically?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
20	Whether the area of the entire SWM Facility is kept tidy?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
21	Whether the wash rooms of workers are cleaned daily and hand wash & minimum toiletries provided?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
22	Whether masks, gloves and other specified PPEs are provided to all workers?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
23	Whether sufficient stock of PPEs & fresh packs of first aid boxes are available at site for workers, staff & visitors?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Whether water supply is maintained in the entire site?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
24	Whether 24 hr.water availability in each of the fire hydrant at site is ensured periodically?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
25	Whether fire lines are cleared out surrounding the site?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

MONTHLY ENVIRONMENTAL MONITORING REPORT																																
Contract Package No: KHM- SWM1								Contractor : M/s Ramky Enviro Engineers Pvt. Ltd														DSM Consultant : M/s Rodic Consultants Pvt. Ltd										
Date of start of O&M : 01.03.2016																Reporting Month & Year										July 2018						
Sl. no	Mitigation Measures as per EMP	Daily Compliance Status																														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
26	Whether high-mast lights, other yard & building lighting systems are functioning properly?		C	C	C	C	C	C		C	C	C	C	C	C		C	C	C	C	C	C		C	C	C	C	C	C		C	C
27	Whether DG back-up is functioning readily?		C	C	C	C	C	C		C	C	C	C	C	C		C	C	C	C	C	C		C	C	C	C	C	C		C	C
28	Whether green belt around the site is maintained properly		C	C	C	C	C	C		C	C	C	C	C	C		C	C	C	C	C	C		C	C	C	C	C	C		C	C
29	Signature of Engineer of Contractor																															
30	Signature of Engineer of DSMC																															
Complied = C Not complied = NC Not Applicable = NA																																

MONTHLY ENVIRONMENTAL MONITORING REPORT																																
Contract Package No: KHM- SWM1					Contractor : M/s Ramky Enviro Engineers Pvt. Ltd															DSM Consultant : M/s Rodic Consultants Pvt. Ltd												
Date of start of O&M : 01.03.2016										Reporting Month & Year										August 2018												
Sl. no	Mitigation Measures as per EMP	Daily Compliance Status																														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1	Whether garbage vehicles are properly covered to avoid littering the roads?	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e
2	Whether approach road to the site is kept free from debris,vegetation etc.?	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e
3	Whether weight of each truck is recorded in the weigh bridge control room?	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e
4	Whether garbage is delivered at designated locations in the compost plant building for segregating dry waste and further sorting?	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e
5	Whether sorted & re-salable dry waste are properly bundled and stacked at designated locations in the compost plant building?	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e
6	Whether windrows for composting are formed at the designated places of the compost plant building?	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e
7	Whether inoculum is sprayed at intervals to speed up composting	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e
8	Whether the decomposing waste in windrow is overturned periodically?	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e
9	Whether windrows & stockpiles of manure are maintained properly to avoid	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e

MONTHLY ENVIRONMENTAL MONITORING REPORT																																	
Contract Package No: KHM- SWM1					Contractor : M/s Ramky Enviro Engineers Pvt. Ltd															DSM Consultant : M/s Rodic Consultants Pvt. Ltd													
Date of start of O&M : 01.03.2016										Reporting Month & Year										August 2018													
Sl. no	Mitigation Measures as per EMP	Daily Compliance Status																															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
	growth of flies and other pests?																																
10	Whether dust suppression measures are taken in the plant building as well as the entire SWM facility?	e	e	e	e		e	e	e	e	e		e	e	e	e	e		e	e	e	e	e	e	e	e		e	e	e	e	e	
11	Whether chemicals are available for spraying, incase if, fly control is found essential?	e	e	e	e		e	e	e	e	e		e	e	e	e	e		e	e	e	e	e	e	e	e		e	e	e	e	e	
12	Whether all other non-biodegradable and non-marketable wastes are periodically cleared off the compost plant building and transferred to landfill ?	e	e	e	e		e	e	e	e	e		e	e	e	e	e		e	e	e	e	e	e	e	e		e	e	e	e	e	
13	Whether toy guns or similar devices are available to chase away birds from the landfill area?	e	e	e	e		e	e	e	e	e		e	e	e	e	e		e	e	e	e	e	e	e	e		e	e	e	e	e	
14	Whether freshly spread landfill portion is spread over with specified layer of soil and rolled over every day?	e	e	e	e		e	e	e	e	e		e	e	e	e	e		e	e	e	e	e	e	e	e		e	e	e	e	e	
15	Whether the leachate underdrain pipe system is periodically scoured?	e	e	e	e		e	e	e	e	e		e	e	e	e	e		e	e	e	e	e	e	e	e		e	e	e	e	e	
16	Whether vent pipes are positioned properly to diffuse out, the landfill gases continuously?	e	e	e	e		e	e	e	e	e		e	e	e	e	e		e	e	e	e	e	e	e	e		e	e	e	e	e	

MONTHLY ENVIRONMENTAL MONITORING REPORT																																		
Contract Package No: KHM- SWM1					Contractor : M/s Ramky Enviro Engineers Pvt. Ltd															DSM Consultant : M/s Rodic Consultants Pvt. Ltd														
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Sl. no	Mitigation Measures as per EMP	Daily Compliance Status																																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
17	Whether odour in the entire site is reduced below offensive level?	e	e	e	e		e	e	e	e	e	e		e	e	e	e	e	e		e	e	e	e	e	e		e	e	e	e	e		
18	Whether entry of animals into the SWM facility is completely prevented?	e	e	e	e		e	e	e	e	e	e		e	e	e	e	e	e		e	e	e	e	e	e		e	e	e	e	e		
19	Whether (i) raw leachate and (ii) treated leachate are tested periodically?	e	e	e	e		e	e	e	e	e	e		e	e	e	e	e	e		e	e	e	e	e	e		e	e	e	e	e		
20	Whether the area of the entire SWM Facility is kept tidy?	e	e	e	e		e	e	e	e	e	e		e	e	e	e	e	e		e	e	e	e	e	e		e	e	e	e	e		
21	Whether the wash rooms of workers are cleaned daily and hand wash & minimum toiletries provided?	e	e	e	e		e	e	e	e	e	e		e	e	e	e	e	e		e	e	e	e	e	e		e	e	e	e	e		
22	Whether masks, gloves and other specified PPEs are provided to all workers?	e	e	e	e		e	e	e	e	e	e		e	e	e	e	e	e		e	e	e	e	e	e		e	e	e	e	e		
23	Whether sufficient stock of PPEs & fresh packs of first aid boxes are available at site for workers, staff & visitors?	e	e	e	e		e	e	e	e	e	e		e	e	e	e	e	e		e	e	e	e	e	e		e	e	e	e	e		
	Whether water supply is maintained in the entire site?	e	e	e	e		e	e	e	e	e	e		e	e	e	e	e	e		e	e	e	e	e	e		e	e	e	e	e		
24	Whether 24 hr. water availability in each of the fire hydrant at site is ensured periodically?	e	e	e	e		e	e	e	e	e	e		e	e	e	e	e	e		e	e	e	e	e	e		e	e	e	e	e		
25	Whether fire lines are cleared out surrounding the site?	e	e	e	e		e	e	e	e	e	e		e	e	e	e	e	e		e	e	e	e	e	e		e	e	e	e	e		

MONTHLY ENVIRONMENTAL MONITORING REPORT																																	
Contract Package No: KHM- SWM1					Contractor : M/s Ramky Enviro Engineers Pvt. Ltd															DSM Consultant : M/s Rodic Consultants Pvt. Ltd													
Date of start of O&M : 01.03.2016															Reporting Month & Year <i>August 2018</i>																		
Sl. no	Mitigation Measures as per EMP	Daily Compliance Status																															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
26	Whether high-mast lights, other yard & building lighting systems are functioning properly?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	Whether DG back-up is functioning readily?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	Whether green belt around the site is maintained properly	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	Signature of Engineer of Contractor																																
30	Signature of Engineer of DSMC																																
Complied = C Not complied = NC Not Applicable =NA																																	

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Contract Package No: KHM- SWM1					Contractor : M/s Ramky Enviro Engineers Pvt. Ltd															DSM Consultant : M/s Rodic Consultants Pvt. Ltd											
Date of start of O&M : 01.03.2016										Reporting Month & Year										September 2018											
Sl. no	Mitigation Measures as per EMP	Daily Compliance Status																													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	Whether garbage vehicles are properly covered to avoid littering the roads?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
2	Whether approach road to the site is kept free from debris,vegetation etc.?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	Whether weight of each truck is recorded in the weigh bridge control room?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
4	Whether garbage is delivered at designated locations in the compost plant building for segregating dry waste and further sorting?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
5	Whether sorted & re-salable dry waste are properly bundled and stacked at designated locations in the compost plant building?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	Whether windrows for composting are formed at the designated places of the compost plant building?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
7	Whether inoculum is sprayed at intervals to speed up composting	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	Whether the decomposing waste in windrow is overturned periodically?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	Whether windrows & stockpiles of manure are maintained properly to avoid	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C

MONTHLY ENVIRONMENTAL MONITORING REPORT																																	
Contract Package No: KHM- SWM1					Contractor : M/s Ramky Enviro Engineers Pvt. Ltd															DSM Consultant : M/s Rodic Consultants Pvt. Ltd													
Date of start of O&M : 01.03.2016										Reporting Month & Year										September 2018													
Sl no	Mitigation Measures as per EMP	Daily Compliance Status																															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
	growth of flies and other pests?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	Whether dust suppression measures are taken in the plant building as well as the entire SWM facility?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	Whether chemicals are available for spraying, incase if, fly control is found essential?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	Whether all other non-biodegradable and non-marketable wastes are periodically cleared off the compost plant building and transferred to landfill ?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
13	Whether toy guns or similar devices are available to chase away birds from the landfill area?	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH	NH
14	Whether freshly spread landfill portion is spread over with specified layer of soil and rolled over every day?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	Whether the leachate underdrain pipe system is periodically scoured?	NH	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	Whether vent pipes are positioned properly to diffuse out, the landfill gases continuously?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C

MONTHLY ENVIRONMENTAL MONITORING REPORT																																	
Contract Package No: KHM- SWM1				Contractor : M/s Ramky Enviro Engineers Pvt. Ltd														DSM Consultant : M/s Rodic Consultants Pvt. Ltd															
Date of start of O&M : 01.03.2016														Reporting Month & Year										September 2018									
Sl. no	Mitigation Measures as per EMP	Daily Compliance Status																															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
17	Whether odour in the entire site is reduced below offensive level?	c		c	c	c	c	c	c	c	c	c	c	c	c	c		c	c	c	c	c	c	c		c	c	c	c	c	c		
18	Whether entry of animals into the SWM facility is completely prevented?	c		c	c	c	c	c	c	c	c	c	c	c	c	c		c	c	c	c	c	c	c		c	c	c	c	c	c		
19	Whether (i) raw leachate and (ii) treated leachate are tested periodically?	c		c	c	c	c	c	c	c	c	c	c	c	c	c		c	c	c	c	c	c	c		c	c	c	c	c	c		
20	Whether the area of the entire SWM Facility is kept tidy?	c		c	c	c	c	c	c	c	c	c	c	c	c	c		c	c	c	c	c	c	c		c	c	c	c	c	c		
21	Whether the wash rooms of workers are cleaned daily and hand wash & minimum toiletries provided?	c		c	c	c	c	c	c	c	c	c	c	c	c	c		c	c	c	c	c	c	c		c	c	c	c	c	c		
22	Whether masks, gloves and other specified PPEs are provided to all workers?	c		c	c	c	c	c	c	c	c	c	c	c	c	c		c	c	c	c	c	c	c		c	c	c	c	c	c		
23	Whether sufficient stock of PPEs & fresh packs of first aid boxes are available at site for workers, staff & visitors?	c		c	c	c	c	c	c	c	c	c	c	c	c	c		c	c	c	c	c	c	c		c	c	c	c	c	c		
	Whether water supply is maintained in the entire site?	c		c	c	c	c	c	c	c	c	c	c	c	c	c		c	c	c	c	c	c	c		c	c	c	c	c	c		
24	Whether 24 hr. water availability in each of the fire hydrant at site is ensured periodically?	c		c	c	c	c	c	c	c	c	c	c	c	c	c		c	c	c	c	c	c	c		c	c	c	c	c	c		
25	Whether fire lines are cleared out surrounding the site?	c		c	c	c	c	c	c	c	c	c	c	c	c	c		c	c	c	c	c	c	c		c	c	c	c	c	c		

MONTHLY ENVIRONMENTAL MONITORING REPORT																																	
Contract Package No: KHM- SWM1								Contractor : M/s Ramky Enviro Engineers Pvt. Ltd														DSM Consultant : M/s Rodic Consultants Pvt. Ltd											
Date of start of O&M : 01.03.2016																Reporting Month & Year										September 2018							
Sl. no	Mitigation Measures as per EMP	Daily Compliance Status																															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
26	Whether high-mast lights, other yard & building lighting systems are functioning properly?	C																															
27	Whether DG back-up is functioning readily?	C																															
28	Whether green belt around the site is maintained properly	C																															
29	Signature of Engineer of Contractor	[Signatures]																															
30	Signature of Engineer of DSMC	[Signatures]																															
Complied = C Not complied = NC Not Applicable =NA																																	

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Contract Package No: KHM- SWM1							Contractor : M/s Ramky Enviro Engineers Pvt. Ltd														DSM Consultant : M/s Rodic Consultants Pvt. Ltd												
Date of start of O&M : 01.03.2016														Reporting Month & Year										October 2018									
Sl. no	Mitigation Measures as per EMP	Daily Compliance Status																															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
1	Whether garbage vehicles are properly covered to avoid littering the roads?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Whether approach road to the site is kept free from debris,vegetation etc.?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Whether weight of each truck is recorded in the weigh bridge control room?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4	Whether garbage is delivered at designated locations in the compost plant building for segregating dry waste and further sorting?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
5	Whether sorted & re-salable dry waste are properly bundled and stacked at designated locations in the compost plant building?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
6	Whether windrows for composting are formed at the designated places of the compost plant building?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
7	Whether inoculum is sprayed at intervals to speed up composting	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
8	Whether the decomposing waste in windrow is overturned periodically?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
9	Whether windrows & stockpiles of manure are maintained properly to avoid	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

MONTHLY ENVIRONMENTAL MONITORING REPORT																																	
Contract Package No: KHM- SWM1							Contractor : M/s Ramky Enviro Engineers Pvt. Ltd														DSM Consultant : M/s Rodic Consultants Pvt. Ltd												
Date of start of O&M : 01.03.2016											Reporting Month & Year											September 2016											
Sl. no	Mitigation Measures as per EMP	Daily Compliance Status																															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
	growth of flies and other pests?																																
10	Whether dust suppression measures are taken in the plant building as well as the entire SWM facility?	C	C	C	C	C	C		C	C	C	C	C	C		C	C	C	C	C	C		C	C	C	C	C	C		C	C	C	
11	Whether chemicals are available for spraying, incase if, fly control is found essential?	C	C	C	C	C	C		C	C	C	C	C	C		C	C	C	C	C	C		C	C	C	C	C	C		C	C	C	
12	Whether all other non-biodegradable and non-marketable wastes are periodically cleared off the compost plant building and transferred to landfill ?	C	C	C	C	C	C		C	C	C	C	C	C		C	C	C	C	C	C		C	C	C	C	C	C		C	C	C	
13	Whether toy guns or similar devices are available to chase away birds from the landfill area?	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	
14	Whether freshly spread landfill portion is spread over with specified layer of soil and rolled over every day?	C	C	C	C	C	C		C	C	C	C	C	C		C	C	C	C	C	C		C	C	C	C	C	C		C	C	C	
15	Whether the leachate underdrain pipe system is periodically scoured?	C	C	C	C	C	C		C	C	C	C	C	C		C	C	C	C	C	C		C	C	C	C	C	C		C	C	C	
16	Whether vent pipes are positioned properly to diffuse out, the landfill gases continuously?	C	C	C	C	C	C		C	C	C	C	C	C		C	C	C	C	C	C		C	C	C	C	C	C		C	C	C	

MONTHLY ENVIRONMENTAL MONITORING REPORT																																		
Contract Package No: KHM- SWM1							Contractor : M/s Ramky Enviro Engineers Pvt. Ltd														DSM Consultant : M/s Rodic Consultants Pvt. Ltd													
Date of start of O&M : 01.03.2016														Reporting Month & Year										October 2018										
Sl. no	Mitigation Measures as per EMP	Daily Compliance Status																																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
17	Whether odour in the entire site is reduced below offensive level?	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	
18	Whether entry of animals into the SWM facility is completely prevented?	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	
19	Whether (i) raw leachate and (ii) treated leachate are tested periodically?	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	
20	Whether the area of the entire SWM Facility is kept tidy?	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	
21	Whether the wash rooms of workers are cleaned daily and hand wash & minimum toiletries provided?	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	
22	Whether masks, gloves and other specified PPEs are provided to all workers?	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	
23	Whether sufficient stock of PPEs & fresh packs of first aid boxes are available at site for workers, staff & visitors?	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	
	Whether water supply is maintained in the entire site?	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	
24	Whether 24 hr. water availability in each of the fire hydrant at site is ensured periodically?	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	
25	Whether fire lines are cleared out surrounding the site?	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e	

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Date of start of O&M : 01.03.2016														Reporting Month & Year <i>October 2018</i>																			
Sl. no	Mitigation Measures as per EMP	Daily Compliance Status																															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
26	Whether high-mast lights, other yard & building lighting systems are functioning properly?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	Whether DG back-up is functioning readily?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	Whether green belt around the site is maintained properly	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	Signature of Engineer of Contractor																																
30	Signature of Engineer of DSMC																																
Complied = C Not complied = NC Not Applicable =NA																																	

MONTHLY ENVIRONMENTAL MONITORING REPORT																																		
Contract Package No: KHM- SWM1				Contractor : M/s Ramky Enviro Engineers Pvt Ltd																DSM Consultant : M/s Rodics														
Date of start of O&M : 01.03.2016											Reporting Month & Year												November 2018											
Sl No	Mitigation Measures as per EMP	Daily Compliance Status																																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
1	Whether garbage vehicles are properly covered to avoid lining the roads?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
2	Whether approach road to the site is kept free from debris,vegetation etc?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
3	Whether weight of each truck is recorded in the weigh bridge control room ?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
4	Whether garbage is delivered at designated locations in the compost plant building for segregating dry waste and further sorting?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
5	Whether sorted & re-salable dry waste are properly bundled and stacked at designated locations in the compost plant building?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
6	Whether windrows for composting are formed at the designated places of the compost plant building?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
7	Whether inoculum is sprayed at intervals to speed up composting	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
8	Whether the decomposing waste in windrow is overturned periodically?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
9	Whether windrows & stockpiles of manure are maintained properly to avoid growth of flies and other pests?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
10	Whether dust suppression measures are taken in the plant building as well as the entire SWM facility ?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
11	Whether chemicals are available for spraying , incase if fly control is found essential?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
12	Whether all other non-biodegradable and non-marketable wastes are periodically cleared off the compost plant building and transferred to landfill ?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
13	Whether toy guns or similar devices are available to chase away birds from the landfill area?	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14	Whether freshly spread landfill portion is spread over with specified layer of soil and rolled over every day?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
15	Whether the leachate under drain pipe system is periodically scoured?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	

MONTHLY ENVIRONMENTAL MONITORING REPORT																																
Contract Package No: KHM-SWM1			Contractor : M/s Ramky Enviro Engineers Pvt Ltd															DSM Consultant : M/s Rodica														
Date of start of O&M : 01.03.2016			Reporting Month & Year															November 2018														
Sl. no	Mitigation Measures as per EMP	Daily Compliance Status																														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
16	Whether vent pipes are positioned properly to diffuse out the landfill gases continuously?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	Whether odour in the entire site is reduced below offensive level?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	Whether entry of animals into the SWM facility is completely prevented?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	Whether (i) raw leachate and (ii) treated leachate are tested periodically?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	Whether the area of the entire SWM Facility is kept tidy?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	Whether the wash rooms of workers are cleaned daily and hand wash & minimum toiletries provided?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	Whether masks, gloves and other specified PPEs are provided to all workers?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	Whether sufficient stock of PPEs & fresh packs of first aid boxes are available at site for workers, staff & visitors?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	Whether water supply is maintained in the entire site?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	Whether 24 hr water availability in each of the fire hydrant at site is ensured periodically?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	Green belt	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	Whether fire lines are cleared out surrounding the site?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	Whether high-mast lights, other yard & building lighting systems are functioning properly?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	Whether green belt around the site is maintained properly?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	Whether DG back-up is functioning readily?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	Signature of Engineer of Contractor	[Signature]																														
30	Signature of Engineer of DSMC	[Signature]																														

Complied - C Not complied - NC Not Applicable - NA

MONTHLY ENVIRONMENTAL MONITORING REPORT																																	
Contract Package No: KHM- SWM1				Contractor : M/s Ramky Enviro Engineers Pvt Ltd															DSM Consultant : M/s Rodics														
Date of start of O&M : 01.03.2016										Reporting Month & Year										December 2018													
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		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
1	Whether garbage vehicles are properly covered to avoid littering the roads?	e		e	e	e	e	e	e		e	e	e	e	e		e	e	e	e	e		e	e	e	e	e	e	e	e	e		
2	Whether approach road to the site is kept free from debris, vegetation etc?	e		e	e	e	e	e			e	e	e	e	e		e	e	e	e	e		e	e	e	e	e	e	e	e	e		
3	Whether weight of each truck is recorded in the weigh bridge control room ?	e		e	e	e	e	e			e	e	e	e	e		e	e	e	e	e		e	e	e	e	e	e	e	e	e		
4	Whether garbage is delivered at designated locations in the compost plant building for segregating dry waste and further sorting?	e		e	e	e	e	e			e	e	e	e	e		e	e	e	e	e		e	e	e	e	e	e	e	e	e		
5	Whether sorted & re-salable dry waste are properly bundled and stacked at designated locations in the compost plant building?	e		e	e	e	e	e			e	e	e	e	e		e	e	e	e	e		e	e	e	e	e	e	e	e	e		
6	Whether windrows for composting are formed at the designated places of the compost plant building?	e		e	e	e	e	e			e	e	e	e	e		e	e	e	e	e		e	e	e	e	e	e	e	e	e		
7	Whether inoculum is sprayed at intervals to speed up composting	e		e	e	e	e	e			e	e	e	e	e		e	e	e	e	e		e	e	e	e	e	e	e	e	e		
8	Whether the decomposing waste in windrow is overturned periodically?	e		e	e	e	e	e			e	e	e	e	e		e	e	e	e	e		e	e	e	e	e	e	e	e	e		
9	Whether windrows & stockpiles of mature are maintained properly to avoid growth of flies and other pests?	e		e	e	e	e	e			e	e	e	e	e		e	e	e	e	e		e	e	e	e	e	e	e	e	e		
10	Whether dust suppression measures are taken in the plant building as well as the entire SWM facility ?	e		e	e	e	e	e			e	e	e	e	e		e	e	e	e	e		e	e	e	e	e	e	e	e	e		
11	Whether chemicals are available for spraying, incase if, fly control is found essential?	e		e	e	e	e	e			e	e	e	e	e		e	e	e	e	e		e	e	e	e	e	e	e	e	e		
12	Whether all other non-biodegradable and non-marketable wastes are periodically cleared off the compost plant building and transferred to landfill ?	e		e	e	e	e	e			e	e	e	e	e		e	e	e	e	e		e	e	e	e	e	e	e	e	e		
13	Whether toy guns or similar devices are available to chase away birds from the landfill area?	NH		NH	NH	NH	NH	NH			NH	NH	NH	NH	NH		NH	NH	NH	NH	NH		NH	NH	NH	NH	NH	NH	NH	NH	NH		
14	Whether freshly spread landfill portion is spread over with specified layer of soil and rolled over every day?	e		e	e	e	e	e			e	e	e	e	e		e	e	e	e	e		e	e	e	e	e	e	e	e	e		
15	Whether the leachate under drain pipe system is periodically scoured?	e		e	e	e	e	e			e	e	e	e	e		e	e	e	e	e		e	e	e	e	e	e	e	e	e		

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Contract Package No: KHM- SWM1			Contractor : M/s Ramky Enviro Engineers Pvt Ltd																		DSM Consultant : M/s Rodics											
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16	Whether vent pipes are positioned properly to diffuse out the landfill gases continuously?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	Whether odour in the entire site is reduced below offensive level?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	Whether entry of animals into the SWM facility is completely prevented?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	Whether (i) raw leachate and (ii) treated leachate are tested periodically?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	Whether the area of the entire SWM Facility is kept tidy?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	Whether the wash rooms of workers are cleaned daily and hand wash & minimum toiletries provided ?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	Whether masks, gloves and other specified PPEs are provided to all workers?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	Whether sufficient stock of PPEs & fresh packs of first aid boxes are available at site for workers, staff & visitors?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	Whether water supply is maintained in the entire site ?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	Whether 24 hr water availability in each of the fire hydrant at site is ensured periodically?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	Green belt	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	Whether fire lines are cleared out surrounding the site?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	Whether high-mast lights, other yard & building lighting systems are functioning properly?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	Whether green belt around the site is maintained properly?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	Whether DG back-up is functioning readily?	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	Signature of Engineer of Contractor	[Signature]																														
30	Signature of Engineer of DSMC	[Signature]																														

Complied = C Not complied = NC Not Applicable =NA

Appendix 7: Photographs of O&M phase of the SWM Facility



1. Leachate Holding Tank in Leachate Treatment Plant



2. Administrative Block and Laboratory



3. Laboratory tests in Progress



4. Leachate Treatment Plant- Reverse Osmosis units



5. Compost Plant -Finishing Section

8. Photographs of the refurbished water treatment plant in operation

Clarifier in Operation at Water Treatment Plant



Laboratory Room -Water Treatment Plant