IBM

ENVIRONMENTAL MONITORING

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ENVIRONMENTAL MONITORING PROGRAM

INTRODUCTION

Environmental monitoring refers to systematic sampling of air, water, soil, and biota in order to observe and study the environment, as well as to derive knowledge from this process. One of the objectives of Environmental Monitoring is to monitor the performance of a project and the effectiveness of mitigation measures. The project may be a new one or an existing project under expansion or an existing project opted for change in product mix. Another important objective of Environmental Monitoring is to verify the impact of the project on the environment predicted during Environment Impact Assessment (EIA) studies. To ensure the effective implementation of the EMP and weigh the efficiency of the mitigation measures, it is proposed to undertake environmental monitoring both during construction and operation period of the up-coming Commercial project.

PERFORMANCE INDICATORS (PIs)

In an up-coming project the physical, biological and social components are of particular significance. Hence, the performances of the following indicators are of great significance:

- Air quality
- Water quality
- Noise levels
- Solid Waste Management
- Re-plantation success / survival rate
- Socio-economic prosperity of the people living in the neighborhoods

It is proposed to monitor the following indicators to confirm the effectiveness of the steps taken to mitigate the adverse impact if any:

- Air Quality

- Noise levels
- Water Quality, and
- Flora

For proper environmental management and effective implementation of the mitigation measures during construction and operation phase of the project, it is essential that an Environmental Monitoring Plan be formulated and followed as indicated in **Table 1.1**

Ambient Air Quality (AAQ) Monitoring

Ambient air quality parameters recommended for monitoring with regard to constructional activities are $PM_{2.5}$, PM_{10} CO, SO_2, and NO_2. Monitoring will be carried out twice a week for one month in each season during construction phase in accordance to National Ambient Air Quantity Standards. The locations and pollution parameters to be monitored during construction and operation phase are provided in the Environmental Monitoring Plan in Table **1.1**

Noise Level Monitoring

The measurement of noise levels will be carried out in five locations in accordance to the ambient Noise Standards formulated by MoEF&CC. The Noise level will be monitored on twenty-four hourly basis. Noise will be recorded at "A" weighted frequency using a slow time response mode of the measuring instrument. The names of the location, duration and the noise pollution parameters to be monitored are given in the Environmental Monitoring Plan (**Table 1.1).**

Success of Plantation

To ensure proper maintenance and monitoring of the proposed plantation activities, a regular survey of the survival rate of the planted trees will be taken up from the start of the operation of the project.

Table 1.1: Environmental Monitoring Plan

Environment Component	Project stage	Parameter	Standards	Location	Duration / Frequency
Ground Water Quality	Construction Stage	Drinking water parameters	Drinking water standards (IS 10500)	Project site 500 m upwind direction 500 m downwind direction	Half yearly
	Operation Phase	Drinking water parameters	Drinking water standards (IS 10500)	Project site	Half yearly
Drinking water	Construction Stage	Drinking water parameters	Drinking water standards (IS 10500)	Supply water after treatment	Half yearly
	Operation Phase	Drinking water parameters	Drinking water standards (IS 10500)	Supply water after treatment	Half yearly
Treated wastewater	Operation Phase	pH, BOD, COD, TDS , TSS, DO,	General Standards for discharge of effluents	Outlet of the Sewage Treatment Plant	Half yearly
Air	Construction Phase	SO_2, NO_2, CO	National Ambient Air Quality Standards	500 m upwind direction 5000 m upwind direction 500 m downwind direction	Half yearly
	Operation Phase	$PM_{2.5}$,PM_{10}, SO_2, NO_2, CO, O_3	National Ambient Air Quality Standards	Project Site	Half yearly
Noise	Construction Phase	Noise Level in dB (A)	As per Ambient Noise Standards	500 m upwind direction 5000 m upwind direction 500 m downwind direction	Half yearly
	Operation Phase	Noise Level in dB (A)	As per Ambient Noise Standards	Project site	Half yearly
Rainwater harvesting	Operation Phase	Inspection of storm water drains and rainwater harvesting pits	Design parameters	Project site	Prior to monsoons

DATA MANAGEMENT

Environmental monitoring has been carried out by the NOIDA TESTING LABORATORIES, Noida, which is duly approved by MoEF&CC/ NABL. All the results will be available at the project site and submitted to the UPPCB as per the requirements for Environmental Clearance.

REPORTING SCHEDULES

The environment management cell will be responsible for timely conduct of the monitoring activities. The results of the analysis will be intimated to the project head. Any anomaly found in the test results will be investigated and necessary corrective actions will be taken.

A complaint register will be maintained to note any complaint from the staff, visitors or any other stakeholder. Corrective actions will be taken against the above complaints.

EMERGENCY

High levels of pollutants in any of the components listed in Table 6.1 may create panic among the occupants. Such information will be made available to them through notices. Further, they will be consulted and their views will be given due importance while taking steps to alleviate the pollutants on immediate and long term basis.