**BASELINE ASSESMENT REPORT FOR RAINBOWPAINTS AND CHEMICALS**

Rainbow paints and chemicals Sierra Leone limited, situated at wellington industrial estate, wellington. It has been a key industry in the production of paints, and chemicals for household use, and other commercials purposes for both national and international. Its production has span over the years in Sierra Leone with a success rating in community projects which benefit the population, such as the private sector of Sierra Leone. In adherence/compliance with environmental protection agency Sierra Leone (EPA) which was established by an act of parliament in 2012 states that any industry or business firm that is to be established or in existence, must purses an environmental protection agency license through a reputable consortium on environmental reporting for review and assessment on its bi-annual and annual report. Therefore this report captures atmospheric data for six months, waste management and grievance redress for its bi-annual.

**ATMOSPHERIC DATA COLLECTION AND ANALYSES**

As required by environmental standards for project interfacing to assess quality of its air (atmosphere) within its objective framework as implies to rainbow paints and chemicals wellington industrial estate wellington community. Data are collected twice on weekly basis as schedule within the thirty days framework in monitoring phase around rainbow paints and chemicals area of concession and terrain, to ensure adequate information for comparative analysis for its bi- annual environmental monitoring report (EMRs). In- situ all atmospheric data are collected with specified equipment which is model: HT-80A, model: LKC1000e/1000s+, and ETEKCITY inferred thermometer774. The area of the industry (rainbow paints and chemicals), is divided into strategic points where atmospheric data (air) sample are collected for analyses. A portable air quality monitoring equipment was used to get the data on particulate matters (pm2.5, pm10, Formaldehyde, air quality index). As shown below are given the average for the monitored parameters.

**TEMPRATURE AND RELATIVE HUMIDITY.**

The historical data of temperature in Freetown is normally between 22.1 degrees Celsius and 32 which can however reduce to 10 degrees in the hammer tan. Whereas: relative humidity ranges at 78.1 to 91.0 in the morning and 62.4 to 82.8 in the afternoon cosy Sierra Leone metrological department. Data obtained are shown in the table above.

**NOISE LEVEL.**

The project area is operationally predominant. The existing ambient noise environment is influence by movement of vehicles (trucks) especially in the production hall around the generator area and can moulding section when operation is in progress. Daytime and night-time noise come predominantly from natural sounds and community activities. Sources of natural sounds include rain, wind, birds, insects, and amphibian. Community activities generating noise include local traffic, trade, work, leisure, speech communication, children having fun, sounds of radios and music being played.

**Data on Particulate Matter**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sample zone | Bi-annual | Pm.2.5 | Pm10 | AQI | TEMP | RH % | HCHO | Noise(Maxi) | Noise(mini) |
| Factory entrance | Months | 21.2 | 31.4 | 40.1 | 73.6 | 65.3 | 0.03 | 68.3 | 61.1 |
| Admin Build | Feb-Jul | 14.7 | 18.3 | 54.1 | 72.3 | 62.88 | 0.025 | 85.5 | 79.9 |
| Production hall entrance |  | 15.5 | 31.2 | 63.5.7 | 76.6 | 68.8 | 0.025 | 78.6 | 71.1 |
| Production centre |  | 322.0 | 212.0 | 32.7 | 72.9 | 63.5 | 0.023 | 85.5 | 78.8 |
| End of pro |  | 93.3 | 52.8 | 3.5 | 78.8 | 69.9 | 0.045 | 83.2 | 77.7 |
| Garden |  | 1.4 | 6.4 | 1.0 | 72.6 | 63.2 | 0.023 | 56.3 | 49.8 |
| Generator |  | 2.1 | 7.5 | 1.7 | 72.7 | 65.5 | 0.015 | 78.6 | 71.1 |
| Can moulding |  | 21.5 | 27.6 | 5.8 | 72.9 | 63.5 | 0.026 | 69.9 | 61.1 |
| End of can moulding |  | 20.1 | 25.6 | 3.9 | 72.1 | 63.2 | 0.026 | 69.9 | 61.1 |
| Maximum | Permissible | 150 | 350 | 25 |  | 200 | 0.1 | 80 | 60 |

**Associated public Health Impacts of key Atmospheric Parameters.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **NO** | **Atmospheric parameter** | **Depicts** | **Public Health Impact** | **Impact on general environment** |  |
| **1** | Air Quality Index | **AQI** | Both short and long-term exposure to air pollution can lead to a wide range of diseases ,including stroke, chronic obstructive pulmonary disease, trachea, bronchus and lung cancers, aggravated asthma and lower respiratory infection | Climate change inducers (Acid rain, flooding and environmental deterioration) |  |
| **2** | **Relative Humidity %** | **RH%** | **L**ow humidity often cause dry skin, nose, eyes throat and mucous membranes, whereas consistently high humidity are likely to provide conditions suitable for the growth of organisms that are harmful | A change in RH causes dimensional alteration in hygroscopic materials (for wood, ivory, skin, and other organic materials),resulting in warping , splitting (above 65%) can cause mould growth and metal corrosion. Low RH(below25%) can cause embrittlement of hygroscopic materials such as leather and paper |  |
| **3** | **Noise** | **Db.** | Chronic noise, even at low levels, can cause annoyance, sleep disruption, and stress that contribute to cardiovascular disease, metabolic disturbances, exacerbation of psychological disorders, and premature mortality | Impacts of anthropogenic noise and concluded that it is potentially a threat to life on earth |  |
| **4** | **Particulate Matter** | **PM** | Coarse (bigger) particles, called pm10, can irritate your eyes, nose and throat. Dust from roads farms, dry, riverbeds, construction sites, and mines are types of pm10. Fine (smaller) particles, call PM2.5, are more dangerous because they can get into the deep pars of your lungs-or even to your blood. | In general, as the levels of PM2.5 in outdoor air increase, the air appears hazy and visibility is reduced. These conditions are similar in appearance to high humidity or fog.  PM10 making lakes and streams acidic. Changing the nutrient balance in coastal waters and large river basins. Depleting the nutrients in soil. Damaging sensitive forests and farm. |  |
|  |  |  |  |  |  |

**Commentary:**

**I**n general, the atmospheric readings on particulate matters (pm2.5),(pm10) were all found to be within range of acceptable limit although production hall needs knee attention its shows high level of indications which is above the permissible limit of 150 there is need to enforce the use and supervision of PPES. Similarly; for formaldehyde and air quality index showed greater indications slight increase in value in some areas such as factory entrance, admin building, and production hall therefore required effective use of personal protective equipment’s (PPES).Similarly; values of Noise at minimum scale found to be slightly higher, although they fall within the threshold limits. But also there is a fall at garden and factory entrance area.

**Overall Recommendations from expert:**

From the information obtained during the monitoring exercise for this report, the challenges on atmospheric load released around rainbow paints environs continues to indicate risk setting on workers; which is liable to cause from increase in atmospheric parameters and will have an adverse effect on the public health in general and all sensitive groups at work shall always be notify on risk of exposure and other corresponding hazards. It is therefore recommended that, the sections that are severely expose to such pollutants dust and other contaminants; shall be well ventilated through enhance air condition

**WASTE MANAMENT:**

**R**ainbow paints and chemicals places great emphasis on efficient waste management practices to minimize its environmental impact through clean and sustainable working environmental practices. Comprehensive waste management plan has been implemented to handle various types of waste generated during operations. The company adheres to the principles of 3Rs (Reduce, Reduse and Recycle) to minimize waste generation. Strict segregation of waste at the source has been enforce, with designated bins for difference’s types of waste, including recyclables, non-recyclables, hazardous wastes, and organic waste. Regular waste audit are conducted to assess waste generation patterns and identify areas for improvement. In addition to waste reduction and recycling efforts, through its robust waste management practices.

**GREVANCE REDRESS MECHANISM:**

Grievance redress mechanisms are potentials risks assessment associated with project operations this mitigation measures are put in place to prevent grievances that will occurred during, before or after projects. Rainbow paints and chemicals placed high premium on risk assessment management on potential social health and impacts of projects activities of the company.

|  |  |  |  |
| --- | --- | --- | --- |
| **Project Activity** | **Potential risk/impact Associated.** | **Management Plan of Action** | **Responsible persons** |
| Companies-community relation including recruitment of labourers/worker. Production and working standards , technicality | ***Grievances:*** poor company-community relation and disagreement shall lead to conflict and subsequent protest. The recruitment of labourers if not handled properly or done in connection with the community elders, political representation will cause grievances from the community against the company: Also, complaints shall be raised by the community people for companies related matters that are not convenient with them. | \*The project management of the company has initiate a sound management community communication(MCC)  \*A well –sophisticated Grievance Redress Mechanisms (GRM) and pathways shall institute into the company’s management strategies.  \*The company’s management shall continually meet with the community stakeholders to form a Grievance Redress Committee that will implement the companies Grievance Redress Mechanisms.  \*All complaints from the community people shall be sufficiently investigated and the right solution taken | The Company Management and community stakeholders |