SUMMARY ENVIRONMENTAL IMPACT ASSESSMENT REPORT

300000 Tons Per Annum Alumina Refinery & 3x10 MW Captive Cogeneration Power Plant

At

Village - Chiranga, Tehsil -Batauli

District – Surguja, Chhattisgarh

By

M/s Maa Kudargarhi Alumina Refinery Pvt Ltd

JANUARY 2021

Summary Environmental Impact Assessment Report

Contents

1.0 PROJECT DESCRIPTION

M/s Maa Kudargarhi Alumina Refinery Pvt Ltd proposes to establish 300000 Tons Per Annum capacity Alumina Refinery and 3x10 MW Captive Cogeneration Power Plant at village Chiranga, tehsil Batauli, district Surguja. Chhattisgarh. Raw materials will be brought to the plant from nearby bauxite mines located in Mainpat. Coal will be brought from nearby SECL coalfields. The project cost is Rs. 1147 Crores.

The proposed project falls under schedule 3(a) Category A of the EIA Notification 14-9-2006. The site is located 6 km west of Batauli and National Highway. The nearest village is Laigu, about 0.5 km away in west direction. Chiranga village is located about 1.8 km away in the southeast direction. National park, wildlife sanctuary, biosphere reserve, and migratory corridors of wild animals are not present within 10 km radius of the site. The site is bounded by coordinates 21°14'45.77"N to 22°57'35.02"N to 22°58'24.88"N & Longitude: 83°21'19.46"E to 83°22'01.30"E

The project will be established on 111.8 hectares of land where 37.6% of the land area will be maintained as greenbelt development.

Annually 0.75 Million Cubic Meter (MCM) water will be required for the project (as make-up water in the system). Water will be taken from Gungutta nala. 70.83 MCM water is available annually in Gungutta nala. Permission of Water Resource Department will be obtained for taking the water. Water will be transported using pipelines. The pipeline will follow the road route.

18 MW electricity and 110 tons/hour steam will be required for the project, which will be supplied by the Cogeneration power plant. 2 x 1500 KW DG set will be installed to meet emergency electricity requirement.

The project site can be approachable from the state highway passing from the west side. The 500 m kutcha approach road to the site will be widened and concreted by MKARPL. The existing kutcha road passing through the project site shall be diverted along the boundary. The existing nala passing through the project site shall not be disturbed. The trees present in the south side of the project boundary shall not be disturbed. Only 30 trees will be felled. More than 3000 new trees shall be planted.

The draft EIA report has been prepared as per the Terms of Reference approved by MOEFCC and submitting the report to Chhattisgarh Environment Conservation Board for conducting Public Hearing. The summary EIA in English and Hindi and the draft EIA report is submitted for conducting Public Hearing. The comments and suggestions received during the public consultation process will be incorporated in the final EIA Report. Final EIA Report will be submitted to MOEFCC for appraisal and grant of Environmental Clearance.

Bayers process has been chosen for making alumina. Bauxite ore is treated with sodium hydroxide at high temperature to form aluminum trihydrate. Aluminum trihydrate is calcined to form alumina.

Steam is generated in FBC boilers at high temperature and pressure. 1x10 MW Boiler will be kept as standby. Some high-pressure steam is directly taken from boiler and used in alumina refining process. Balance high pressure steam is used to run the turbines and generate electricity.

2.0 DESCRIPTION OF BASELINE ENVIRONMENT

Baseline data was generated during post-monsoon season from 1st October 2020 to 31st December 2020. 10 km area around the site was considered as study area. Data was generated by following the standard procedures of the Ministry of Environment Forests and Climate Change and the Central Pollution Control Board. Meteorological data on wind speed, wind direction, relative humidity and temperature was generated in the study area. Ambient air, noise, groundwater, soil and surface water samples were collected from 8 locations and analysed. List of plants and animals present in the study area were collected from Forest Department. Data on demography, occupation pattern, cropping pattern, infrastructure facilities of study area were collected from District Statistics Handbook and the Census records.

The predominant wind direction is towards the south direction. Annual rainfall is high, about 1399 mm. Calm periods are more during night. $PM_{2.5}$ values were found between 13.1 $\mu g/m^3$ to 30.6 $\mu g/m^3$. PM_{10} was found between 20.1 $\mu g/m^3$ to 45.3 $\mu g/m^3$. SO_2 was found between 4.0 $\mu g/m^3$ to 5.7 $\mu g/m^3$. NO_2 was found between 9.0 $\mu g/m^3$ to 14.5 $\mu g/m^3$. The maximum values are observed in Batauli, which is an urbanized area and near the National Highway. Ambient air quality of all the eight locations are meeting the national standards.

Day time noise level was found between 48.6 to 52.6 dB(A). Night time noise levels was found between 39.4 to 43.4.6 dB (A). The noise level meeting the national standards in all the eight locations.

Analysis results of ground water reveal the following:-

- pH varies from to 6.55 to 6.89
- Total Dissolved Solids varies from 92 to 240 mg/l.
- Total Hardness varies from 40 to 90 mg/l.
- Calcium varies from 12 to 32mg/l
- Magnesium varies from 1.9 to 2.4 mg/l
- Chloride varies from 6 to 15 mg/l
- Fluoride varies from 0.62 to 0.68 mg/l
- Nitrates varies from 3.2 to 6.2 mg/l
- Sulphates varies from 4.2 to 7.5 mg/l
- Toxic Metals were not found in any samples
- Total coliform was not found in any samples

The groundwater quality meets the acceptable drinking water quality limit.

Analysis results of surface water reveal the following:-

- pH varies from to 6.76 to 6.93
- Dissolved Oxygen varies from 5.5 to 6.8 mg/l.
- BOD varies from 1.6 to 2.2 mg/l
- COD varies from 8 to 12 mg/l
- Total Dissolved Solids varies from 90 to 180 mg/l.
- Total coliform varies from 80 to 160 MPN/100 ml

The surface water quality meets the 'C Class Best Designated Use' of CPCB, which is fit for drinking after conventional treatment.

Soils of study area are sandy loam by nature. Specific Conductivity and pH is in normal range. Organic matter content is sufficient. The concentration of Nitrogen, Phosphorus and Potassium were medium. The soils of study area are fit for paddy cultivation.

No national park or wildlife sanctuary or biosphere reserve is present in the study area. No endangered species of flora and fauna is found in the study area. No migratory corridor of wild

animals is present in the study area. From the list of flora and fauna it has been observed that no Schedule- I fauna found in the study area. Sal, Jatropha, Palas, Mahua, Tendu, Pipal, Bargad, Neem, Tamarind, Arjun, Saja, Kikar, Babul, Semal, Kusum, Jamun, Bija and Dhawra are the dominating plant species found in the area. No rare or endangered plant or animal species are found in the study area.

The study area is mostly rural. Batauli is the major city located on the north side. The literacy rate is good. Most of the people are engaged in agriculture. The study area has satisfactory infrastructure facilities (roads, railway, schools, community centers and hospitals).

3.0 ANTICIPATED ENVIRONMENTAL IMPACT & MITIGATION MEASURES

Coal dust will be generated during coal handling, crushing and screening. Water sprinklers and Bag Filters will be used to reduce dust generation. Wet grinding of bauxite will be done so there will be no dust generation. All belt conveyors will be covered. Tall stacks will be provided for calciner, FBC boiler and DG sets. Internal roads shall be concreted. Mechanical road sweeping machines will be deployed for daily cleaning of all internal roads. Rain gun will be deployed near the coal unloading area. Boundary wall of 3 m height will be developed around the project. Nylon screen of 3 m height will be provided over the boundary wall to minimize the spread of fugitive dust.

Entire wastewater generated will be treated in Effluent Treatment Plant. The water after treatment will be recycled. Domestic wastewater from washroom, toilets and canteen will be treated in Sewage Treatment Plant. Treated water will be used for gardening purpose.

Low noise emitting plant and machinery will be selected. 37.6% land area will be developed as greenbelt. The noise level at plant boundary will be maintained below 70 dBA.

Red mud will be stored in dry form in red mud pond. The red mud pond shall be lined using HDPE. Flyash will be collected in dry form. Red mud and flyash will be sold to cement plants. Flyash, red mud and lime grits shall be also used for brick, tiles and block making in the Brick Plant. Vanadium shall be recovered from vanadium sludge. STP sludge shall be used as manure.

The daily truck movement will be 175 trucks (30 tons capacity). Parking place has been provided inside the plant. Appropriate traffic management plan will be implemented in consultation with the transport authorities, so that smooth traffic flow happens after the project.

Rainwater harvesting will be done inside plant premises and the water will be used in the process during the rainy days.

Greenbelt will be developed in 37.6% of the total area. 20 - 25 m wide green belt will be developed, as per space available. Three tier greenbelt will be developed, tall trees in last row, short trees in middle rows and ground hugging shrubs in first row. Tree density will be 600-610 trees per acre. Locally available plant species will be used like pongamia, peltaforum, kadamba, semal, alstonia, kaner, amaltas, gulmohor, hibiscus, chandni, mango, neem, amla, ficus, ashok, kachnar, jacaranda, etc.

4.0 ENVIRONMENTAL MONITORING PROGRAM

Environmental Management Department (EMD) will be set up to undertake routine environmental monitoring. Monitoring will be done to ensure compliance with the prescribed discharge standards. The Head of EMD will report to the GM (Plant Head). Qualified staff will be recruited in EMD. Environmental monitoring of ambient air, stack emission, fugitive dust emission, noise levels, groundwater quality and soils will be carried out as per norms. EMD will be responsible for the following functions:-

Regular monitoring of:-

- Measuring fugitive dust emissions upwind and downwind direction of crusher and material unloading area. PM_{10} will be measured in the work environment. It will report any abnormalities for initiating corrective and preventive actions.
- Measuring the ambient air quality inside plant and at upwind and downwind direction of plant (3 locations in nearby villages like Chiranga, Kalipur and Laigu).
- Checking the wastewater quality (inlet and outlet water ETP and STP).
- Checking the ground water quality inside and outsde the plant.
- Water quality of Gungutta nala at upstream and downstream of site and village ponds.
- Noise monitoring at plant boundary, nearest habitation, near highway, and work areas.
- Development and maintenance of greenbelt and greenery within the plant boundary.

5.0 ADDITIONAL STUDIES

Fire protection measures like fixed water sprinklers connected to water reservoir with pump will be provided around the coal yard, and storage tanks of fuel oil, caustic soda and sulphuric acid. In addition to above, mobile rain gun will be deployed around the unloading place and stock yard. Disaster Management Plan will be prepared to take care during any accident.

Rs. 95 lakhs have been earmarked for undertaking infrastructure development activities in surrounding villages under the Corporate Environment Responsibility. This amount will be spent for developing infrastructure facilities in schools, community centres, hospitals, health care, rainwater harvesting, roads, ec in surrounding villages. The details of ECR activities will be provided in final EIA report after obtaining the comments during Public Hearing.

6.0 PROJECT BENEFITS

About 500 persons will be employed for 36 months during the construction period. Local workers will be taken by MKARPL. 1275 people will be employed during the operation of the project. MKARPL will employ local people for plant construction and operation.

7.0 ENVIRONMENTAL MANAGEMENT PLAN

Environmental Management Plan for effective implementation and management of pollution mitigation measures has been provided. In order to implement the recommended mitigation measures and EMP, budgetary provision of Rs.25 crores as capital expenditure and Rs.11 crores as annual expenditure has been provided.

Environment Management Department (EMD) will ensure that all air pollution control device, effluent treatment plant, sewage treatment plant and water re-circulating systems function effectively. EMD will also supervise disposal of spent oil and lubricants and used batteries to the authorized vendors. Plantation will be started during the construction phase by following the guidelines issued by the Central Pollution Control Board. Schemes for resource conservation (raw materials, water, etc), rainwater harvesting, groundwater recharge and social forestry

development will be taken up by EMC. Regular environmental awareness programs for the employees will be conducted.

Workers will be periodically subjected to health check-up as per standard norms. The management will ensure cleanliness and hygiene in the plant. in EMD association with the safety department will undertake full review of the potential hazard scenarios during plant commissioning. The management will ensure enforcement of the proposed safeguards for pollution abatement, resource conservation, accident prevention and waste minimization.