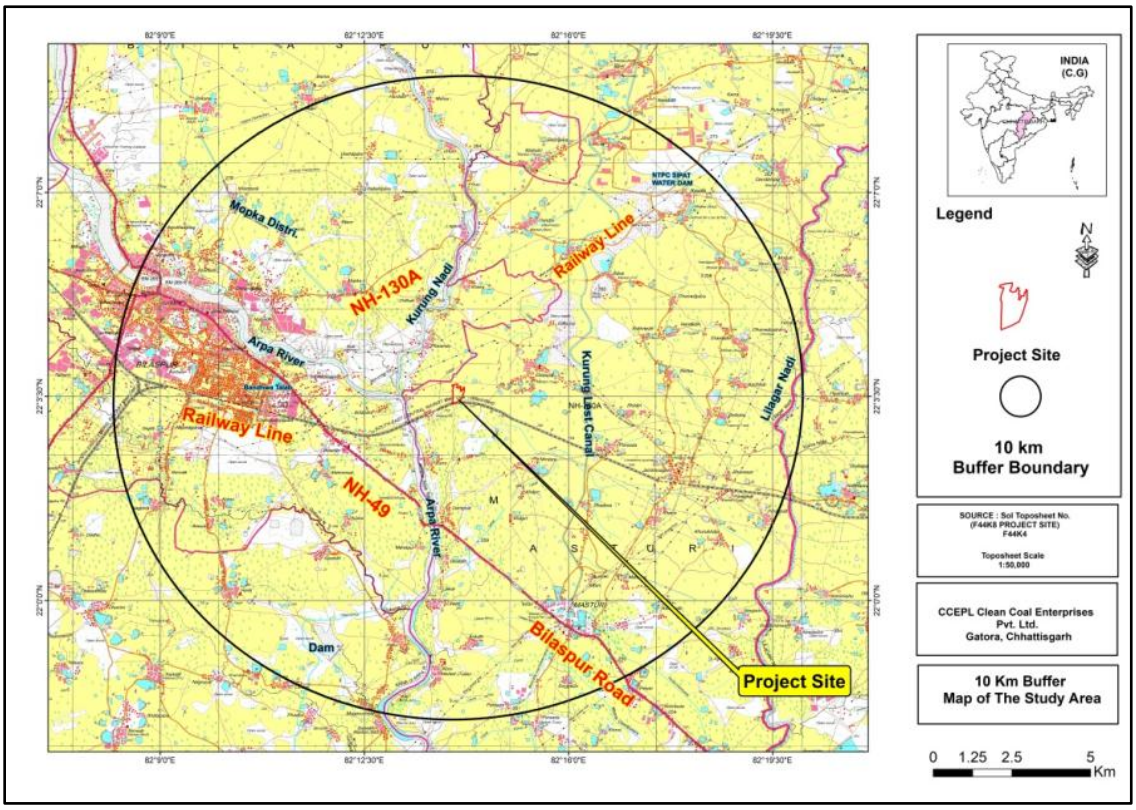
SUMMARY OF ENVIRONMENTAL IMPACT ASSESSMENT REPORT FOR PUBLIC HEARING

"Expansion of Wet Type Coal Washery Project Based on Heavy Media Cyclone from 2.5 MTPA to 5.0 MTPA"

At

Village-Gatora, Tehsil- Masturi
District- Bilaspur, Chhattisgarh



By

M/s. Clean Coal Enterprises Pvt. Ltd. (CCEPL)
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1.0 PROJECT DESCRIPTION

M/s Clean Coal Enterprises Pvt. Ltd. (CCEPL) has proposed proposes to expand the existing coal washery unit from 2.5 MTPA to 5.0 MTPA capacity, based on Heavy Media Cyclone located at Village-Gatora, Tehsil- Masturi, District- Bilaspur, Chhattisgarh. The plant area shall be increased from existing 10.11 ha to 14.93 ha for the proposed expansion. The project site is adjacent to Gatora Main Road towards North direction. Also, site is well connected with National Highways NH-130A which is at 4 km towards NW direction and NH-49 at 3 km towards SW from the project site. The nearest village is Gatora, which is located about 2 km ENE direction. The nearest railway station is Gatora Railway Station which is located at about 1 km in WSW direction. Bilasa Devi Kevat Airport is at 13 km towards WSW direction and critically polluted area Siltara Industrial Area is located at 96 km in SW direction. The site and study area falls in the survey of India, Topo Sheet No– F44K4. There are no Wildlife sanctuaries & National Park within 15 km radius.

Standard Terms of Reference (TOR) for the expansion project has been granted by MoEF&CC vide J-11015/410/2013-IA-II(M) dated 10.06.2023. Draft EIA/EMP is being prepared and will be submitted to CECB to conduct public hearing as per the norms.

The proposed project activity falls under the category of "Coal Washeries" and categorized as “Category-A” under project activity 2 (a) of EIA Notification 2006 & its amendment till date.

Existing plant is over 10.11 ha and for the proposed expansion 4.82 ha of more land is required. Thus, total land required is 14.93 ha which is under possession by company.

A total of 130 manpower is needed for the expanded plant which include manager, supervisor, skilled and unskilled workers, etc. In addition, 30 personnel are needed for security and 15 unskilled persons are needed for maintenance.

Water required for the Washery will be for washing, dust suppression and domestic purpose. Coal washery will be done using a closed water circuit where water after washing will be treated and recycled for coal washing. Only make up water will be added in the water circuit to compensate the water lost during washing. Total Water requirement after expansion is estimated to be 1070 KLD.

The total power requirement after expansion for the coal washery plant will be around 2.75 MW which will be sourced from State Grid. In case of power failure, the existing 2 DG (750kVA+250kVA) is already provided. No further DG set is required.

Coal washery comprises unloading of raw coal, storing, handling, crushing, screening and coal cleaning using water mixed with magnetite. No wastewater will be discharged outside from the coal washery. Middlings and fines will be given to power plants located in nearby areas. Rejects will be disposed in abandoned coal mines. Dust from crusher and screens will be controlled using Bag Filters.

2.0 DESCRIPTION OF BASELINE ENVIRONMENT

Baseline data was generated during winter season from 1st December 2022 to 28th February 2023. 10 km area around the site was considered as study area. Data was generated by following the standard/approved 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 near the project site. Ambient air quality was generated at 8 locations. Noise levels were measured at 8 locations. Surface water quality was collected and analysed at 8 locations; Groundwater quality was analysed at 8 locations. Soil quality was analysed at 5 locations. Data on plants and animals present in the study area was collected from the District Forest Department. Data on landuse, demography, occupation pattern, cropping pattern, infrastructure facilities were collected from District Statistics Handbook and the Tehsil records.

During the study period maximum temperature was recorded 30.3^{0}C and minimum temperature was recorded as 12.9^{0}C. The minimum Humidity was recorded 42% and maximum Humidity was recorded as 53%. Dominant wind direction in the study period was from NNE - SSW during the study period. Average Wind Speed during study period is 5.8 m/s. During the study, wind blow was in the direction of NNE-SSW and wind speed range Calm to 5.7 m/s. Based on the wind direction and wind speed it is interpreted that maximum dispersion of air pollutant will be in SSW direction during the study period.

Summary of Ambient Air Quality

- PM_{10} = 50.3-87.6µg/m^3
- $PM_{2.5}$ = 26.5-49.5 µg/m^3
- SO_2 = 6.2-11.4 µg/m^3
- NO_2 = 8.6-29.5µg/m^3
- CO = of 63.3-1380 µg/m^3

Summary of Noise Monitoring

The noise level study shows that the noise levels are meeting the acceptable norms. The noise levels in area varies from 45.8 to 73.8 dBA during day time and 34.6 to 65.7 dBA during the night time.

Summary of Ground Water Quality

- pH = 7.06-7.41
- Total dissolved solid = 423 to 480 mg/L
- Total hardness = 360-378 mg/L
- Total Alkalinity = 248-356 mg/L
- Iron = 0.15-0.26 mg/L
- Total coliform was not found in any samples

The groundwater quality meets the specification prescribed by BIS for drinking (IS:10500:2012)

Summary of Surface Water Quality

- pH = 7.23-7.83.
- TDS = 285-470 mg/L.
- DO = 4.8– 6.3 mg/L.
- COD = 10-40 mg/L.
- BOD = 2.4-10.6 mg/L.

Summary of Soil Analysis

The pH value of the soil suspension varied from 7.13 to 7.36. In terms of soil pH the characteristic of the soil is moderately alkaline pH in nature. The Electrical conductivity

varied from 210 to 280 µMohs/cm. The sodium absorption ratio of soil varied from 0.30 to 0.60. The Cation exchange capacity varied from 12.5 to 15.6 meq/100 gm. The loss on ignition in terms of organic matter varied from 0.66 to 0.79%, it indicates that soils are medium in organic carbon status. The major nutrient such as Nitrogen, Phosphorus and Potassium level varied from 36 mg/kg to 46 mg/kg., 6.3 mg/kg to 6.8 mg/kg and 42 mg/kg to 63 mg/kg respectively. The micronutrients such as copper, zinc, boron and iron are minimum and sufficient for plantation.

Flora and Fauna: No RF/PF is present within the study area (10 km radius). Total 77 floral species were observed from study area and Total 8 species of mammals, 8 species of reptiles, 49 species of birds 9 species of butterflies have been observed during the primary survey. Three reptiles of the sighted fauna observed in the study area which is protected as Schedule -I in Wildlife Protection Act 1972. Conservation plan for the same has been submitted to PCCF, Office, Raipur for its approval.

According to 2011 Population Census the study area has a total population of 2685878 of which 50.66 percent are male and the remaining 49.34 percent are female. The overall sex ratio in the study area has been worked out to 974 females per 1000 males.

3.0 ANTICIPATED ENVIRONMENTAL IMPACT & MITIGATION MEASURES

Coal Dust is the main pollutant generated during coal handling and crushing cum screening process. Water sprinklers will be used to reduce dust generation during coal handling. Wet dust suppression system will be installed to reduce the dust generation during coal crushing and screening. The crusher unit will be provided with dust extraction system and Bag Filter. All belt conveyors will be covered. Internal roads shall be concreted. Industrial vacuum cleaners will be used in workshops and other work areas. Mechanical road sweeping machines will be deployed for daily cleaning of all internal roads.

100% wastewater generated during coal washing will be treated in Effluent Treatment Plant. The water after treatment will be recycled for coal washing. Domestic sewage will be treated in Sewage Treatment Plant. Treated water will be used for horticulture development.

Low noise emitting plant and machinery will be selected. 33% land area will be developed as greenbelt. The noise level at plant boundary will be maintained below 70 dBA.

Coal washing will produce middlings, fines and rejects which will be sold to power plants in nearby districts.

The existing truck movement pattern will not undergo any significant change due to this coal washery. Fraction of the coal which is already transported by road from the coal mines of the region will be intercepted by the coal washery for washing. Appropriate traffic management plan will be implemented in consultation with the transport authorities.

4.0 ENVIRONMENTAL MONITORING PROGRAM

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

Regular monitoring of:-

- Measuring fugitive emissions, measuring $PM_{2.5}$ and PM_{10} in work environment and report any abnormalities for initiating corrective and preventive actions.
- Measuring the ambient air quality at upwind and downwind direction of crusher, at plant boundary (3 locations, 120 degree to each other).
- Checking the wastewater quality (inlet and outlet water wastewater treatment plant).
- Checking the ground water quality near the coal storage area, and surrounding villages.
- 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

Adequate fire mitigation measures will be ensured for handling fire in coal yard. Disaster Management Plan has been prepared to take care of public health and safety during any accident.

CER activities and public hearing commitment will be over three year period. This amount will be spent for making classrooms in local schools, providing teaching aids, making community centres, develop drinking water facility in nearby villages, making rainwater harvesting structures like anicuts and check dams in the area, developing infrastructure facilities and equipment in primary health centres and as per public hearing.

6.0 PROJECT BENEFITS

Coal washing improves the quality of poor grade coal to higher grade coal. During washing, the waste materials like muck present in poor grade coal is removed. High grade coal is required for steel making and cement making. Use of high grade coal in thermal power plants improves the plant efficiency.

The demand for coal washery is growing due to following reasons:

- Depletion of good quality coal mines in India.
- Mechanised mining increases impurities in raw coal.
- Higher transportation cost makes it uneconomical to transport high ash coal.
- Meeting strict environmental requirement in regard to pollution prevention and control (by steel plants, power plants and cement plants).

About 100 people on daily wages basis will get employment during the construction stage. 130 persons will be employed during operational phase, in the skilled, semi-skilled and unskilled category. The preference will be given to local population for employment in the semi-skilled and unskilled category.

7.0 ENVIRONMENTAL MANAGEMENT PLAN

Environmental Management Plan for effective management of environmental impacts and ensuring overall protection of the environment through appropriate management procedures has been developed. In order to implement the recommended mitigation

measures and institutionalize the EMP, after expansion budgetary provision of Rs. 863 capital expenditure has been made. Recurring annual expenditure will be Rs. 211.5 lakhs of the capital expenditure.

Environment Management Cell (EMC) will ensure that all air pollution control device, effluent treatment plants and water re-circulating systems function effectively. EMC 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 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. EMC will ensure cleanliness and industrial hygiene in the plant. EMC in association with the safety department will undertake full review of the potential hazard scenarios during plant commissioning. The review will ensure enforcement of the proposed safeguards for pollution abatement, resource conservation, accident prevention and waste minimization. The implementation of EMP would ensure that all elements of project comply with relevant environmental legislation throughout its life cycle.

8.0 CONSULTANTS

The consultant engaged for the preparation of the EIA/EMP for Expansion of Wet Type Coal Washery based on Heavy Media Cyclone is M/s GRC India Pvt. Ltd. GRC India is an ISO 9001:2015, 14001:2015 & ISO 45000:2018 certified pioneer environmental consultancy in India. It has been accredited by National Accreditation Board of Education & Training (NABET), Quality Council of India (QCI), which is the highest accreditation authority in India. The GRC India Pvt. Ltd. established a modern R&D Laboratory, which is compliant to IS/ISO 9001:2015, IS/ISO 14001:2015 and IS/ISO 45001:2018. All the project sampling and analysis with various studies are done by the GRC labs. Laboratory received accreditation from NABL which has been renewed as per procedure (current certificate no. TC-7501 valid till 25.05.2023) and is recognized by MoEF&CC (Gazette Notification No. S.O. 388 (E) dated 10.02.2017).