SUMMARY OF ENVIRONMENTAL IMPACT ASSESSMENT REPORT FOR PUBLIC HEARING

Greenfield Wet Type Coal Washery Project Based on Heavy Media Cyclone Technology of 2.6 MTPA

At

Village – Bhilai and Ralia, Tehsil-Masturi, District-Bilaspur, State– Chhattisgarh

Project Proponent :-

M/s Arpa Coal Benefication and Energy LLP
Registered Office:- Mittal Chambers, Link Road,
Bilaspur 495001, CG

Consultant :-

GRASS ROOTS RESEARCH & CREATION INDIA (P) LTD.
(QCI/NABET Accredition No. NABET/EIA/21-24/SA0211)
F-374 & 375, Sector-63, Noida, U.P.

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1.0 PROJECT DESCRIPTION

M/s Arpa Coal Benification and Energy LLP proposed to setup the facility of coal washery of capacity 2.6 MTPA.

The proposed plant is located at Village–Bhilai and Ralia, Tehsil-Masturi, District–Bilaspur, Chhattisgarh. Jairam Akaltara road is at 1 km from project site in south direction. NH-49 is at 3.9 km in south direction. Bilaspur road is at 6.9 km in SSW direction. NH-130A is at 7.8 km in NW direction. The nearest railway station is Jairamnagar which is located at about 1.4 km in South direction and nearest Air Port is Bilasa Devi Kevat Airport, Bilaspur, which is situated at about 20 km in WSW and Swami Vivekananda International Airport, Raipur which is situated at about 113.0 km in SW. Nearest habitation from project site is Kasondi village at 0.4 km in east direction. Jairamnagar town is at 1 km in south direction. Bilaspur city is at 14.5 km in west direction. Kurung left bank canal is 2.3 km from project site in west direction. Lilagar river is at 2.5 km in east direction, Karnala reservoir is at 6.6 km in east direction, Arpa river is at 7.6 km in east direction, Kurung river is at 8 km in east direction, NTPC water reservoir is at 8.9 km in south direction. Crocodile park is at 5.6 km in ESE direction and Dalha PF is at 9.1 km in NE direction. There are no Wildlife sanctuaries & National Park within 10 km radius.

Total land of the project is 13.1 ha. Land has been purchased by partners. Lease agreement has been executed between partners and firm for 30 years. Conversion of land use is under progress.

75 persons will be required during operation of the project.

Water requirement for the proposed project is 490 KLD. Water will be sourced from ground water.

2.5 MW of electricity will be required for operation of proposed plant; which will be supplied by state grid.

Application was submitted for TOR vide proposal no. IA/CG/CMIN/460564/2024 dated 2nd February 2024. Project was considered in 7th EAC (Coal Mining) Meeting dated 12.02.2024 and subsequently ToR has been granted by Ministry of Environment, Forests and Climate Change (MoEF&CC) vide File No. IA-J-11015/9/2024-IA-II(M) dated 15.03.2024. 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.

Coal washery comprises unloading of raw coal, storing, handling, crushing, screening and coal cleaning using water mixed with magnetite. No wastewater is being discharged outside from the coal washery. Bag Filters will be installed to control Dust from crusher and screens.

2.0 DESCRIPTION OF BASELINE ENVIRONMENT

Baseline data was generated during winter season from 1st March 2024 to 31st May 2024 in 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 analyzed at 8 locations; Groundwater quality was analyzed at 8 locations. Soil quality was analyzed 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 minimum temperature was recorded 12.9^{0}C and maximum temperature was recorded as 30.3^{0}C, Minimum humidity was recorded 35% and maximum Humidity was recorded as 46%. Dominant wind direction in the study period was from NE - SW during the study period. Average Wind Speed during study period is 2.43 m/s. Based on the wind direction and wind speed it is interpreted that maximum dispersion of air pollutant will be in SW direction during the study period.

Summary of Ambient Air Quality

- PM_{10} = 58.2-82.7 µg/m^3
- $PM_{2.5}$ = 33.2-45.1 µg/m^3
- SO_2 = 5.4-9.9 µg/m^3

- NO_2 = 10.9-16.6 µg/m^3
- CO = of 210-480 µg/m^3

The noise level study shows that the noise levels are meeting the acceptable norms. The noise level in area varies from 42.5 to 64.1 dBA during day time and 35.6 to 52.3 dBA during the night time.

Summary of Ground Water Quality

- pH = 7.09-7.33
- Total dissolved solid = 350 to 415 mg/L
- Total hardness = 243-267 mg/L
- Total Alkalinity = 230-256 mg/L
- Iron = 0.24-0.28 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 = 7.51-8.14
- TDS = 300-620 mg/L.
- DO = 3.8-5.8 mg/L.
- COD = 10-40 mg/L.
- BOD = 2.8-12.6 mg/L.

Summary of Soil Quality

- pH :- 7.72-7.81
- Electrical Conductivity :- 271-287 µS/cm
- Sodium Absorption Ratio :- 0.66-0.80
- Cation Exchange Capacity :- 10.7-11.8 meq/100 gm
- Loss on ignition in terms of Organic matter :- 0.58-0.89 %.

The soils are medium in organic carbon status. The major nutrient such as Nitrogen, Phosphorus and Potassium level varied from 168.84 kg/ha to 271.05 kg/ha., 17.39 to 21.57

kg/ha and 304.4 to 424.82 kg/ha respectively. The micronutrients such as copper, zinc, boron and iron are minimum and sufficient for plantation.

Flora and Fauna: The study area (10 km radius) has one forest viz. Dalha PF at 9.1 km (NE). Kurung left bank canal is at 2.3 km (W), Lilagar river is at 2.5 km (E), Karra Naala Reservoir is at 6.6 km (E), Arpa river is at 7.6 km (E), Kurung Nadi is at 8 km (E) and NTPC water reservoir is at 8.9 km (S). A Crocodile park is at 5.6 km in ESE direction.

There are total 77 floral species present in the study area out of which there are 67 tree species, 6 shrubs species and 4 grasses species in the study area.

Total 49 species of birds, 8 species of reptiles, 8 species of mammals, 9 species of reptiles and 9 species of aquatic faunas have been seen in the study area. Apart from crocodile in the crocodile park, 5 reptiles *viz* Indian chameleon, Common Rat Snake, Common Indian Krait, Indian Cobra and Russell's Viper have been observed in the study area which is protected as Schedule -I in Wildlife Protection Act 1972.

According 50.5 percent are male and the remaining 49.5 percent are female.. The overall sex ratio in the study area has been worked out to 980 females per 1000 males.

3.0 ANTICIPATED ENVIRONMENTAL IMPACT & MITIGATION MEASURES

Coal Dust will be the main pollutant generated during coal handling and crushing cum screening process. Water sprinklers will be provided 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 kept covered. Internal roads will 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.

wastewater generated during coal washing will be treated in thickener. The water after treatment will be recycled for coal washing. Domestic sewage will be treated in STP.

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

Rejects generated will be sent to nearby power plant.

The existing truck movement pattern will not undergo any significant change due to this expansion. 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 constituted to undertake routine environmental monitoring. Regular Monitoring will be done to ensure compliance with the prescribed laws and standards. The Head of EMC reports 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 is 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 carried out 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.
- Mechanized 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 75 persons will get employment during operation of the project., 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, budgetary provision of Rs.420.82 capital expenditure has been made. Recurring annual expenditure will be Rs. 90.5 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 25.04.25) and is recognized by MoEF&CC (Gazette Notification No. S.O. 388 (E) dated 10.02.2017).