SUMMARY ON

ENVIRONMENTAL IMPACT ASSESSMENT

REPORT

OF

Hind Energy & Coal Beneficiation (India) Ltd.

(Change in Technology)

at

Hindadih Village, Masturi Tehsil

Bilaspur District, Chhattisgarh

Submitted to

CHHATTISGARH ENVIRONMENT CONSERVATION BOARD

Raipur, Chhattisgarh

1.0 PROJECT DESCRIPTION

Hind Energy & Coal Beneficiation (India) Ltd. is an existing plant coal washery at Hindadih Village, Masturi Tehsil, Bilaspur District, Chhattisgarh. It is proposed for change in technology in the existing plant i.e. from 2.4 MTPA DRY type coal washery to 2.4 MTPA WET type coal washery.

Capacity of Coal Washery	EC obtained	CTO details	Change in technology
2.4 MTPA (Dry type)	E.C. accorded in 24th June 2008	CTO issued for both 2.4 MTPA (Dry type) & 1.2 MTPA (Wet type)	2.4 MTPA (Dry type) to 2.4 MTPA (Wet Type)
1.2 MTPA (Wet Type)	E.C. accorded in 21st May 2014		No change
Total Permitted Capacity of Coal Washery: 3.6 MTPA			

Proposed change in technology will be carried out in the existing plant premises of 27.42 acres. Total cost of the proposed project (for Change in technology) is Rs.12.00 Crores.

As per the Ministry of Environment Forests & Climate Change, New Delhi notification, dated 14th September, 2006 and its subsequent amendments, coal washery above 1 MTPA capacity has been classified under Category 'A'.

The Hon'ble EAC has accorded Terms of Reference (TOR) for the proposed project vide letter no. J-11015/364/2009-IA-II (M) Dated 11th February 2016. The EIA Report has been prepared by incorporating the TOR stipulated by the Hon'ble EAC.

Pioneer Enviro Laboratories & Consultants Private Limited, Hyderabad, which is accredited by NABET, Quality Council of India for conducting EIA studies for coal washery projects, have prepared Environmental Impact Assessment (EIA) report for the proposed project of Coal washery plant by incorporating the TOR approved by Ministry of Environment, Forest & Climate Change, New Delhi. The report contains detailed description of the following:

- Characterization of status of environment with in an area of 10 km radius from the plant for major environmental components including air, water, noise, soil, flora, fauna and socio-economic environment.
- Assessment of air emissions, liquid waste and solid waste from the proposed project along with the noise level assessment.

- Environmental Management Plan comprising of emission control measures proposed to be adopted in the proposed project, solid waste management, Greenbelt development.
- Post Project Environmental Monitoring.

1.1 Raw Materials

The following will be the raw material requirement for proposed project

S.No.	Raw Material	Quantity	Source
1.	ROM Coal	3.6 MTPA	Coal will be sourced from SECL mines namely Deepka, Gevra, Kusmunda and other mines [on DO basis]

1.2 Manufacturing Process

Coal washery comprises of coal crushing & screening and washing of coal to produce clean coal with ash content less than 34%. Wet type of coal washery is proposed as it will have lesser environmental problems compared to the dry type of washery and to suit to client's specific requirement of lower ash content. Closed loop water system is proposed in the process. Zero effluent discharge will be maintained in the proposed project.

The process consists of crushing of the ROM coal in a single toothed roll crusher. The crushed coal is then washed in Zig to produce clean coal and middling with the help of water stream and air pressure.

1.3 Water Requirement

- Total water requirement for 2.4 MTPA (Dry washery) & 1.2 MTPA (Wet process) for which EC has been accorded is 585 cum/day.
- After conversion of 2.4 MTPA DRY type coal washery to 2.4 MTPA WET type coal washery, an additional water of 475 cum/day will be required.
- The total water requirement after proposed change in technology will be 1085 cum/day only. This includes Make-up water for Coal Washery and for domestic water.
- Water permission has already been obtained from CGWA for drawl of 585 cum/day of ground water.

- The source of additional water for the present proposal will be Lilagarh river (Bhawradih Anicut).
- Rain water harvesting will be taken up and this water will be utilised to meet plant water requirement which in turn will reduce the net water requirement for the plant.

The following is the break-up of the water requirement for proposed project.

WATER REQUIREMENT

S.No.	Particular	Daily Water Requirement	Consumption / System Loss	Wastewater Generation	Mode of utilization / Disposal
1.	Process				
a	Recycled	16400	---	---	Recycle, Close Circuit Water System
b	Fresh Make up	785	---	---	
	Sub Total 1	*17185*	*785*	*16400*	
2.	Dust Suppression & Plantation				
a	Sprinkling on roads	110	110	---	---
b	Dust Suppression	90	90	---	
c	Green belt & Plantation	70	70	---	
	Sub Total 2	*270*	*270*	--	
3.	Domestic				
a	Drinking Water	3	3	--	Septic tanks followed by sub-surface dispersion trench
b	Domestic use (washing, flushing, etc.)	27	27	20*	
	Sub Total 3	*30*	*30*	---	
Grand Total (1+2+3)		**17485**	**1085**	**16400**	**Zero Discharge**

1.4 Waste Water Generation

- No process wastewater is being generated in the existing Dry type coal washery. Only sanitary waste water is being generated and same is being treated in Septic tank followed by subsurface dispersion.
- There will not be any process wastewater will be generated in the proposed Wet type coal washery also, as closed loop water system will be followed.
- Zero effluent discharge is being maintained in the existing plant and same will be continued in the present proposal.

- Sanitary waste water is being treated in septic tank followed by Subsurface Dispersion trench and same will be continued in the present proposal.

1.5 Wastewater Characteristics

The characteristics of sanitary waste water (untreated) will be as following:

PARAMETER	CONCENTRATION
pH	7.0 – 8.5
BOD	200 – 250 mg/l
COD	300 – 400 mg/l
TDS	800 – 900 mg/l

2.0 DESCRIPTION OF ENVIRONMENT

Base line data has been collected on ambient air quality, water quality, noise levels, flora and fauna and socio economic details of people within 10 km radius of the plant.

2.1 Ambient air quality

Ambient air quality was monitored for $PM_{2.5}$, PM_{10}, SO_2, NOx & CO at 8 stations including project site for one season as per MoEF&CC guidelines. The following are the concentrations of various parameters at the monitoring stations:

Parameter		Concentration
$PM_{2.5}$	:	18.1 to 38.7 µg/m^3
PM_{10} *	:	31.2 to 64.5 µg/m^3
SO_2	:	10.5 to 19.8 µg/m^3
NO_X	:	10.8 to 21.5 µg/m^3
CO	:	385 to 675 µg/m^3

* PAH in PM_{10} were analyzed and their concentrations at all monitoring Stations are Below Detectable Level.

2.2 Water Quality

Ground water samples were collected at 8 stations along with surface water samples and analyzed for various Physico-Chemical parameters. The water samples are within the permissible limits of IS: 10500 & IS: 2296.

2.3 Noise Levels

Noise levels were measured at 8 locations during day time & Night time. The noise levels at the monitoring stations are ranging 45.3 dBA to 63.8 dBA.

3.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

3.1 Prediction of impacts on air quality

The likely emissions from the proposed project are PM_{10}, SO_2, NOx & CO. The predictions of Ground level concentrations have been carried out using Industrial Source Complex (ISC-3) model. Meteorological data such as wind direction, wind speed, max. and min. temperatures collected at the site have been used as input data to run the model.

Present Scenario

There is no change in the Air Emission sources, as present proposal is only change in technology from DRY process to WET process. However, the Air Quality Modelling has been carried out by utilizing the Baseline data collection from March 2016 to May 2016.

The predicted max. Incremental rise in PM concentration (24 hourly) will be 0.62 $\mu g/m^3$ at a distance of 480 m from the origin stack in the down wind direction over the baseline concentrations.

The predicted incremental rise in PM concentration due to the Vehicular emission will be 2.7 $\mu g/m^3$.

Hence the total predicted incremental rise due to the emission from coal washery plant and due the vehicular emission will be 0.62 $\mu g/m^3$ + 2.7 $\mu g/m^3$ = 3.32 $\mu g/m^3$

The predicted incremental rise in NOx concentration due to the Vehicular emission will be 19.8 $\mu g/m^3$.

The predicted incremental rise in CO concentration due to the Vehicular emission will be 12.6 $\mu g/m^3$.

Net Resultant maximum concentrations due to the Project

Item	PM ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_X ($\mu g/m^3$)	CO ($\mu g/m^3$)
Maximum average baseline conc. in the study area	64.5	19.8	21.5	675
Maximum predicted incremental rise in concentration due to the proposed project	3.32 (0.62 + 2.7)	---	19.8	12.6
Net resultant concentrations during operation of the plant	**67.82**	**19.8**	**41.3**	**687.6**
National Ambient Air Quality Standards	**100**	**80**	**80**	**2000**

The predicted results show that the net resultant concentration (max. baseline conc. + max. incremental rise in conc.) of PM_{10}, SO_2, NOx and CO will be well within the National Ambient Air Quality Standards after commissioning of proposed project. Hence there will not be any adverse impact on air environment due to the proposed project.

3.2 Prediction of impacts on noise quality

The major sources of noise generation in the proposed project are DG set & Crusher. The ambient noise levels will be within the standards prescribed by MoEF&CC vide notification dated 14-02-2000 under the Noise Pollution (Regulation & Control), Rules 2000 i.e. the noise levels will be less than 75 dBA during day time and less than 70 dBA during night time. 9.1 acres of extensive greenbelt has been developed to further attenuating the noise levels. Hence no negative impact is envisaged due to proposed change in technology.

3.3 Prediction of impacts on Water Environment

There will be no wastewater generation in the coal washery unit, as closed loop water system will be adopted. Sanitary waste water will be treated in septic tank followed by sub-surface dispersion trench. The water required for the proposed project will be met from Ground water source & Lilagarh river (Bhawradih). Hence there will not be any adverse impact on environment due to the proposed project.

3.4 Prediction of Impacts on Land Environment

All the required air pollution control systems has been provided to comply with CPCB / CECB norms. All solid wastes will be disposed / utilized as per CPCB / CECB norms. 9.1 Acres of greenbelt is already been developed as per guidelines. Hence there will not be any adverse impact on land environment due to the proposed project.

3.5 Socio - Economic Environment

There will be lot of opportunities in employment to local people during construction as well as in operation phase. There will be further upliftment in Socio Economic status of the people in the area. Hence there will be further development of the area due to the proposed project.

4.0 ENVIRONMENTAL MONITORING PROGRAMME

Environmental monitoring is being carried as per the guidelines of CECB and MoEF&CC; which are tabulated below:

MONITORING SCHEDULE FOR ENVIRONMENTAL PARAMETERS

S.No.	Particulars	Frequency of Monitoring	Duration of sampling	Parameters required to be monitored
1.Water & Waste water quality				
A.	Water quality (around storage yards)	Once in a month	Grab sampling	As per IS: 10500
2. Air Quality				
A.	Stack Monitoring	Once in a month		PM
B.	Ambient Air quality	Twice a week	24 hours continuously	$PM_{2.5}$, PM_{10}, SO_2 & NO_x
C.	Fugitive emission monitoring	Once in a month	8 hours	PM
3. Meteorological Data				
A.	Meteorological data to be monitored at the plant site.	Daily	Continuous monitoring	Temperature, Relative Humidity, rainfall, wind direction & wind speed
4. Noise Levels				
A.	Noise Levels	Once in a month	one day in a month on hourly basis	Ambient Noise levels in dBA

5.0 ADDITIONAL STUDIES

No Rehabilitation and Resettlement is involved in the proposed project. Hence no R & R study has been carried out.

6.0 PROJECT BENEFITS

With the establishment of the proposed project employment potential will increase. Land prices in the area will increase. The economic status of the people in the area will improve due to the proposed project. Periodic medical checkups will be carried out. Top priority will be given to locals in employment.

7.0 ENVIRONMENT MANAGEMENT PLAN

7.1 Air Environment

The following are air emission control systems are already installed in the plant:

S.No.	Stack attached	Control Equipment	PM emission
1.	Coal Crusher	Dust Extraction systems with Bag filters	< 50 mg/Nm^3

The main sources of dust pollution are raw material unloading areas, crushing operations of raw materials and their transfer points. Fugitive dust emissions are likely in the unloading areas, material transfer point, screening area etc. Fugitive emission in the material unloading area will be avoided by providing dust suppression system. Fugitive emission from material unloading operations, material transfer points is being controlled fully with total enclosure and all the transfer emission are connected with extractor inlet point and passed through a high efficiency Bag Filter before discharging into the atmosphere. Fugitive emissions are being regularly monitored in the plant area and CPCB stipulations regarding fugitive emission control and monitoring are strictly followed.

7.2 Water Environment

There will not be any process waste water from the coal washery unit as closed loop water system will be adopted. The only waste water generation will be sanitary waste water of 20.0 cum/day and will be treated in septic tank followed by sub-surface dispersion trench. Zero effluent discharge will be maintained in the proposed project.

7.3 Noise Environment

The major sources of noise in the proposed project will be DG set & crusher. All the machinery will be manufactured in accordance with MoEF&CC norms on Noise levels. The employees working near the noise generating sources will be provided with earplugs. The extensive greenbelt development proposed within the plant premises will help in attenuating the noise levels further. Noise barriers in the form of trees are recommended to be grown around administrative block and other utility units.

7.4 Land Environment

There will not be any process waste water from the coal washery unit as closed loop water system will be adopted. All the required Air emission control systems are installed and operated to comply with CECB norms. Washery rejects will be given to reject based power plants. Extensive greenbelt has been developed in the plant premises. Desirable beautification and landscaping practices is followed. Hence there will not be any impact due to the proposed project.

Solid waste generation and disposal

S.NO	TYPE OF SOLID WASTE	QUANTITY (IN MTPA)	DISPOSAL PROPOSED
1	Washery rejects	0.72	Will be given to Power plant of M/s. Prakash Industries Ltd.

7.5 Greenbelt Development

Greenbelt of 9.1 acres has been developed in the in the plant.

Capital cost for environment protection for the total project is Rs. 0.5 Crores.

7.6 Implementation of CREP Recommendations

All the CREP recommendations will be strictly followed in the proposed coal washery plant.

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