

**SUMMARY ON  
ENVIRONMENTAL IMPACT ASSESSMENT  
REPORT**

**OF**

**Hind Energy & Coal Beneficiation (India) Ltd.**

0.96 MTPA Wet type Coal Washery

at

Village: Baloda & Tehsili, District: Janjgir Champa,  
Chhattisgarh

Submitted to

**CHHATTISGARH ENVIRONMENT CONSERVATION BOARD**

Raipur, Chhattisgarh

## **1.0 PROJECT DESCRIPTION**

**M/s Hind Energy & Coal Beneficiation (India) Ltd.** is proposing to install 0.96 MTPA wet type of coal washery at Village: Baloda & Tehsili, District: Janjgir Champa, Chhattisgarh. Total land in possession of the management is 14.60 Acres. The total capital investment of the proposed project is Rs. 14.60 Crores.

As per the Ministry of Environment & Forests, New Delhi notification, dated 14<sup>th</sup> September, 2006 and its subsequent amendments, coal washery below 1 MTPA capacity has been classified under Category 'B'. The Hon'ble State Level EAC has accorded Terms of Reference (TOR) for the proposed project vide letter no. F. No. 1053/SEAC-CG/EC/Coal Washery/Janjgir/790 dated 07/08/2014. The EIA Report has been prepared by incorporating the TOR stipulated by the Hon'ble State Level 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 Draft Environmental Impact Assessment (EIA) report for the proposed project of Coal washery plant by incorporating the TOR approved by Ministry of Environment & Forests, 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.	Raw Coal	0.96 MTPA	SECL mainly Korba [on DO basis]

### 1.2 Manufacturing Process

Coal washery comprises of coal crushing & screening and washing of coal to produce clean coal with 34% ash, appropriately sized and a middling fraction by treating the raised coals from the mine. 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 is being maintained in the existing plant and similar pattern will be maintained in the plant premises 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

The total water requirement for the proposed project is 495 cum/day. This includes Make-up water for Coal Washery and for domestic water. The water requirement for the proposed project will be sourced from Ground water source. Application has been submitted to CGWB for Water drawl permission from Ground Water. The following is the break-up of the water requirement for proposed project.

#### WATER REQUIREMENT

S.No	SOURCE	QUANTITY (cum/day)
1.	Make-up water for Coal washery	490
2.	Domestic	5
	<b>Total</b>	<b>495</b>

#### 1.4 Waste Water Generation

Closed loop water system will be implemented in the proposed coal washery. Hence there will not be any waste water generation from process and cooling.

Zero effluent discharge will be maintained in proposed project. The only waste water generation from the plant will be sanitary waste water. The total quantity of sanitary waste water expected from the proposed project will be 4 cum/day.

#### WASTE WATER GENERATION

SOURCE	QUANTITY (cum/day)
Sanitary waste water	4
<b>Total</b>	<b>4</b>

#### 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<sub>2.5</sub>, PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub> & CO at 8 stations including project site for one season as per MoEF guidelines. The following are the concentrations of various parameters at the monitoring stations:

Parameter	Concentration
PM <sub>2.5</sub>	: 15.3 to 35.2 µg/m <sup>3</sup>
PM <sub>10</sub> *	: 25.6 to 58.6 µg/m <sup>3</sup>
SO <sub>2</sub>	: 8.6 to 19.6 µg/m <sup>3</sup>
NO <sub>x</sub>	: 9.3 to 21.2 µg/m <sup>3</sup>
CO	: 360 to 900 µg/m <sup>3</sup>

\* PAH in PM<sub>10</sub> 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 46.0 dBA to 57.9 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<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub> & 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.

The predicted max. Incremental rise in PM concentration (24 hourly) will be 0.05 µg/m<sup>3</sup> at a distance of 460 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 0.97 µg/m<sup>3</sup>.

Hence the total predicted incremental rise due to the emission from coal washery plant and due the vehicular emission will be  $0.05 \mu\text{g}/\text{m}^3 + 0.97 \mu\text{g}/\text{m}^3 = 1.02 \mu\text{g}/\text{m}^3$

The predicted incremental rise in NO<sub>x</sub> concentration due to the Vehicular emission will be 6.4 µg/m<sup>3</sup>.

The predicted incremental rise in CO concentration due to the Vehicular emission will be 4.8 µg/m<sup>3</sup>.

**Net Resultant maximum concentrations due to the Proposed Project**

Item	PM (~g/m <sup>3</sup> )	SO <sub>2</sub> (~g/m <sup>3</sup> )	NO <sub>x</sub> (~g/m <sup>3</sup> )	CO (~g/m <sup>3</sup> )
Maximum average baseline conc. in the study area	58.6	19.6	21.2	900
Maximum predicted incremental rise in concentration due to the proposed project	1.02 (0.05 + 0.97)	---	6.4	4.8
Maximum predicted incremental rise in concentration due to the other Industries in the study area.	0.5	---	5.5	3.6
<b>Net resultant concentrations during operation of the plant</b>	<b>60.12</b>	<b>19.6</b>	<b>33.1</b>	<b>908.4</b>
<b>National Ambient Air Quality Standards</b>	<b>100</b>	<b>80</b>	<b>80</b>	<b>2000</b>

The predicted results show that the net resultant concentration (max. baseline conc. + max. incremental rise in conc.) of PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub> 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 will be DG set & Crusher. The ambient noise levels will be within the standards prescribed by MoEF 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. 5.0 acres of extensive greenbelt will be developed to further attenuate the noise levels. Hence there will not be any adverse impact due to noise on population in surrounding areas due to the proposed project.

**3.3 Prediction of impacts on Water Environment**

There will be no effluent generation in the coal washery unit, as closed circuit cooling system will be adopted. Sanitary waste water will be treated in septic tank followed by soak pit. The water required for the proposed project will be met from Ground water source. Application has been submitted to CGWB for Water drawl permission from Ground Water. 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 will be provided to comply with CPCB / CECB norms. All solid wastes will be disposed / utilized as per CPCB / CECB norms. 5.0 Acres of greenbelt will be 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

Post project monitoring will be conducted as per the guidelines of CECB and MoEF are tabulated below:

#### MONITORING SCHEDULE FOR ENVIRONMENTAL PARAMETERS

S.No.	Particulars	Frequency of Monitoring	Duration of sampling	Parameters required to be monitored
<b>1. Water &amp; Waste water quality</b>				
A.	Water quality (around storage yards)	Once in a month	Grab sampling	As per IS: 10500
<b>2. Air Quality</b>				
A.	Stack Monitoring	Once in a month		PM
B.	Ambient Air quality	Twice a week	24 hours continuously	PM <sub>2.5</sub> , PM <sub>10</sub> , SO <sub>2</sub> & NO <sub>x</sub>
C.	Fugitive emission monitoring	Once in a month	8 hours	PM
<b>3. Meteorological Data</b>				
A.	Meteorological data to be monitored at the plant site.	Daily	Continuous monitoring	Temperature, Relative Humidity, rainfall, wind direction & wind speed.
<b>4. Noise Levels</b>				
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 proposed in the proposed project:

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

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 will be controlled fully with total enclosure and all the transfer emission will be connected with extractor inlet point and will pass through a high efficiency Bag Filter before discharging into the atmosphere. Fugitive emissions will be regularly monitored in the plant area and CPCB stipulations regarding fugitive emission control and monitoring will be strictly followed.

### 7.2 Water Environment

There will not be any process waste water from the coal washery unit as closed circuit water system will be adopted. The only waste water generation will be sanitary waste water of 4.0 cum/day and will be treated in septic tank followed by soak pit. 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 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 be no waste water generation from the process and cooling from the proposed project. All the required Air emission control systems will be installed and operated to comply with CECB norms. Washery middling & rejects will be given to reject based power plants. Extensive greenbelt will be developed in the plant premises. Desirable beautification and landscaping practices will be 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 & Middling	0.24	Will be given to Power plant of M/s. Swastik Power and Mineral Resources Pvt. Limited.

### 7.5 Greenbelt Development

Greenbelt of 5.0 acres will be developed in the proposed project.

Capital cost for environment protection for the total project is Rs. 0.8 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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