

**Form-V**  
**(See Rule 14)**  
**Environmental statement for the financial year ending 31<sup>st</sup> March 2013.**

**(Unit- Power House)**

**PART-A**

- i) Name and address of the owner/ Occupier of the industry operation or process : **Mr. R. A. Singh**  
**Head (ES)**  
**West Bokaro Division,**  
**TATA Steel Limited, P.O.: Ghatotand**  
**Dist. Ramgarh, Jharkhand- 825314**
- ii) Industry category Primary- (STC-code) : SITC -321.4, 321.5A, 321.6A  
Secondary- (SIC code) : ISIC -2100
- iii) Production capacity- units : 2 X 10 MW Thermal Power
- iv) Year of establishment : 1994
- v) Date of last environmental statement submitted : Letter no. EMC/IMS/4016/568/12, dated 15<sup>th</sup> Sept, 2012. For the year 2011-12.

**PART-B**

**Water and Raw material Consumption**

- i) Water Consumption ( m<sup>3</sup>/d)
- Process : 1079.21 m<sup>3</sup>/d
- Cooling : 3431.8 m<sup>3</sup>/d ( Boiler feed + Cooling)
- Domestic : (This is included in the Environmental Statement of West Bokaro Colliery)

Name of the Product	Process Water Consumption per unit of product output	
	During the previous Financial year (2011-12)	During the current Financial year (2012-13)
Electricity	0.0163 m <sup>3</sup> /kwh (Process + Cooling)	0.0149 m <sup>3</sup> /kwh (Process + Cooling)

- ii) Raw material consumption

*Name of raw materials	Name of products	Consumption of raw material per unit of output	
		During the previous Financial year (2011-12)	During the current Financial year (2012-13)
Coal ( Washery rejects)	Electricity	2.63 kg/kwh	2.17 kg/kwh

\*Industry may use codes is disclosing details of raw material would violate contractual obligation otherwise all industries have to name the raw materials used.

**PART-C**

Pollution discharged to environment / unit of output  
(Parameter as specified in the consent issued)

<b>Pollutants</b>	<b>Quantity of pollutants discharged (mass /day)</b>	<b>Concentration of pollutants discharges (mass / volume)</b>	<b>Percentage of variation from prescribed standards with reason</b>
a. Water	100% effluent is recycled back to the process. Effluent analysis report is attached as <b>annexure-II</b> .		
b. Air	Due to control of source emission, ambient air quality is found to be well within limit as shown in ambient air quality monitoring report is enclosed herewith. Stack emission is within permissible limit. Report enclosed as <b>annexure-I</b> .		

**PART-D**

**(As specified under Hazardous Wastes  
[Management, Handling and Transboundary Movement Rules, 2008])**

<b>Hazardous Waste</b>	<b>Total Quantity</b>	
	<b>During the previous financial year (2011-12)</b>	<b>During the current financial year (2012-13)</b>
(a) From Process a) Oil soaked cotton (jute)	1240 Kg/y	3720 Kg/y
(b) From Pollution control facilities a. Used oil b. Non ferrous scrap (Cu -Wires, Zn chips, etc.)	1500 liters Nil	1100 liters Nil

**PART- E**  
**Solid Wastes**

<b>Solid Wastes</b>	<b>Total Quantity</b>	
	<b>During the previous financial year(2011-12)</b>	<b>During the current financial year (2012-13)</b>
(a) From Process Coarse ash ( from boiler)	Approx 90524 T	Approx 88574 T
(b) From Pollution control facilities Fly ash (from ESPs)	Approx 60349 T	Approx 59049 T
(C) (1) Quantity recycled or reutilized within the unit (2) Sold (3) Disposed	100% ash being dump for filling of low laying area created between the OB dumps.	

### PART-F

Please specify the characterization (in term of composition and quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes.

Category of Waste	Characteristics	Quantity	Disposal Practice
<b>Solid Waste</b>			
1.Coarse Ash	Burnt coarse coal particles ( <i>Solid</i> )	~88574 T	Being used in filling low lying area between OB dumps.
2.Fly Ash	Burnt fine coal particles ( <i>Solid</i> )	~59049 T	
<b>Haz. Waste</b>			
1. Used Oil	Used Oil ( <i>Liquid</i> )	1100 lit	Disposed off to authorized recycler.
2. Oil soaked cotton/jute	Used Cotton ( <i>Solid</i> )	3720 Kg/Yr	Safely collected and stored.

### PART-G

**Impact of the pollution abatement measure taken on conservation of natural resources and on the cost of production**

Power House unit of West Bokaro Division of TATA Steel Ltd. is an ISO 9001, 14001 and OSHA 18001 unit, entire operation is done by eco-friendly way. FBC based power plant used high ash content (58-62%) reject coal as fuel and produces power in efficient way. A four field BHEL make Electrostatic Precipitator has been installed with various associated auxiliary system which limits the emission well below the permissible norm. Online stack monitoring system is installed for monitoring and recording of stack emission level further working on to extend data transmission facility to JSPCB office, Ranchi.

The combined impact due to implementation of pollution prevention and control measures cost per tonne of ROM coal, of entire west Bokaro division (Washery, PH, Mines, Eng. services, Logistic, etc.) is Rs. 26.51 (Rupees twenty six and fifty one paisa only).

### PART-H

**Additional measures / investment proposal for environmental protection including abatement of pollution, prevention of pollution**

Recently ESP controllers are upgraded for enhanced reliability and protection features to new generation ESPC-VER III with the cost of rupees 12.0 Lakhs. Regular maintenance of all equipments is done for enhancement of efficiency of PH. Zero discharge is maintained strictly with maximum recycling of water uses.

### PART-I

**Any other particular for improving the quality of the environment**

West Bokaro Division of TATA Steel Ltd. is committed to improve safety and environment by strictly practicing Environmental Management System of company. Various programs are arranged such as green month, World Environmental day, Van Mohotsav for public awareness.

**Mr. R. A. Singh, Head (ES),  
West Bokaro Division, TATA Steel Limited, P.O.: Ghatotand  
Dist. Ramgarh, Jharkhand- 825314**

## Air Quality Report at Work Place

Name of Industry: **West Bokaro Division**No. of sampling points: **(01)**Date of Sampling: **04.04.2013 to 19.04.2013**  
**06.05.2013 to 21.05.2013**  
**06.06.2013 to 21.06.2013**Sampling position: **Power House**

## 1. Control, Room

Location	Time	SO <sub>2</sub>	NO <sub>x</sub>	RPM	SPM
Washery Complex, (P.H)	09.00 AM to 05.00 PM on 04.04.2013	3.4	55	173	511
	05.00 PM on 04.04.2013 to 09.00 AM on 05.04.2013	2.4	45	151	462
	09.00 AM to 05.00 PM on 18.04.2013	2.9	52	156	472
	05.00 PM on 18.04.2013 to 09.00 AM on 19.04.2013	2.4	43	144	447
	09.00 AM to 05.00 PM on 06.05.2013	3.5	60	171	529
	05.00 PM on 06.05.2013 to 09.00 AM on 07.05.2013	3.0	48	158	468
	09.00 AM to 05.00 PM on 20.05.2013	3.6	61	178	546
	05.00 PM on 20.05.2013 to 09.00 AM on 21.05.2013	3.2	48	158	474
	09.00 AM to 05.00 PM on 06.06.2013	3.0	46	153	468
	05.00 PM on 06.06.2013 to 09.00 AM on 07.06.2013	2.8	43	130	414
	09.00 AM to 05.00 PM on 20.06.2013	2.9	43	149	454
	05.00 PM on 20.06.2013 to 09.00 AM on 21.06.2013	2.6	36	131	381
	<b>Maximum</b>		<b>3.6</b>	<b>61</b>	<b>178</b>
<b>Average</b>		<b>3.0</b>	<b>48</b>	<b>154</b>	<b>469</b>
<b>Limit</b>		<b>120</b> µg/ m <sup>3</sup>	<b>120</b> µg/ m <sup>3</sup>	<b>300</b> µg/ m <sup>3</sup>	<b>700</b> µg/ m <sup>3</sup>

## Ambient Air Quality Report

Name of Industry: **West Bokaro Division**

No. of sampling points: **(03)**  
 Sampling position: **Power House**

Date of Sampling: **18.04.2013 to 19.04.2013**  
**15.05.2013 to 16.05.2013**  
**01.06.2013 to 02.06.2013**

### 1. Banjee

Location	Time	SO <sub>2</sub>	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Banjee</b>	09.00 AM to 05.00 PM on 18.04.2013	3.4	39	76	42
	05.00 PM on 18.04.2013 to 09.00 AM on 19.04.2013	2.0	26	58	35
	8.30 AM to 04.30 PM on 15.05.2013	4.0	42	78	45
	4.30 PM on 15.05.2013 to 08.30 AM on 16.05.2013	2.0	33	51	40
	8.30 AM to 04.30 PM on 01.06.2013	1.9	26	48	40
	4.30 PM on 01.06.2013 to 08.30 AM on 02.06.2013	2.0	29	51	35
<b>Maximum</b>		<b>4.0</b>	<b>42</b>	<b>78</b>	<b>45</b>
<b>Average</b>		<b>2.5</b>	<b>32</b>	<b>60</b>	<b>39</b>
<b>Limit</b>		<b>80 µg/m<sup>3</sup></b>	<b>80 µg/m<sup>3</sup></b>	<b>100 µg/m<sup>3</sup></b>	<b>60 µg/m<sup>3</sup></b>

## Ambient Air Quality Report

Name of Industry: **West Bokaro Division**

No. of sampling points: **(03)**  
 Sampling position: **Power House**

Date of Sampling: **19.04.2013 to 20.04.2013**  
**16.05.2013 to 17.05.2013**  
**04.06.2013 to 05.06.2013**

**2. Pundi,**

Location	Time	SO <sub>2</sub>	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Pundi</b>	09.00 AM to 05.00 PM on 19.04.2013	2.7	29	66	40
	05.00 PM on 19.04.2013 to 09.00 AM on 20.04.2013	2.0	23	50	33
	09.30 AM to 05.30 PM on 16.05.2013	2.0	42	60	44
	05.30 PM on 16.05.2013 to 09.30 AM on 17.05.2013	2.0	35	55	41
	09.30 AM to 05.30 PM on 04.06.2013	1.2	22	46	37
	05.30 PM on 04.06.2013 to 09.30 AM on 05.06.2013	1.9	27	41	32
<b>Maximum</b>		<b>2.7</b>	<b>42</b>	<b>66</b>	<b>44</b>
<b>Average</b>		<b>2.0</b>	<b>30</b>	<b>53</b>	<b>38</b>
<b>Limit</b>		<b>80 µg/m<sup>3</sup></b>	<b>80 µg/m<sup>3</sup></b>	<b>100 µg/m<sup>3</sup></b>	<b>60 µg/m<sup>3</sup></b>

## Ambient Air Quality Report

Name of Industry: **West Bokaro Division**

No. of sampling points: **(03)**  
 Sampling position: **Power House**

Date of Sampling: **20.04.2013 to 21.04.2013**  
**17.05.2013 to 18.05.2013**  
**05.06.2013 to 06.06.2013**

### 3. Mukundabera

Location	Time	SO <sub>2</sub>	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Mukuda bera</b>	09.00 AM to 05.00 PM on 20.04.2013	2.6	52	79	56
	05.00 PM on 20.04.2013 to 09.00 AM on 21.04.2013	2.4	47	71	50
	10.30 AM to 06.30 PM on 17.05.2016	3.1	45	88	57
	06.30 PM on 17.05.2016 to 10.30 AM on 18.05.2016	1.9	32	56	46
	08.30 AM to 04.30 PM on 05.06.2013	2.1	36	57	42
	04.30 PM on 05.06.2013 to 08.30 AM on 06.06.2013	2.1	27	46	38
<b>Maximum</b>		<b>3.1</b>	<b>52</b>	<b>88</b>	<b>57</b>
<b>Average</b>		<b>2.3</b>	<b>40</b>	<b>66</b>	<b>48</b>
<b>Limit</b>		<b>80 µg/m<sup>3</sup></b>	<b>80 µg/m<sup>3</sup></b>	<b>100 µg/m<sup>3</sup></b>	<b>60 µg/m<sup>3</sup></b>

## Stack Emission Monitoring Report

Sl. No.	PARAMETERS	DETAILS
1.	Name of industry	Power House, WBD, Tata Steel
2.	Date of sampling	20.06.2013
3.	Weather condition	Normal dry
4.	Stack No if any	02 (Attached to Boiler No. 02)
5.	Stack height from ground meter	38 meter
6.	Stack diameter meter	2.1 meter
7.	Height of sampling port meter	28 meter
8.	Atmospheric temperature deg C	42 deg C
9.	Stack gas temperature deg C	134 deg C
10.	Stack gas velocity m/s	11.2 m/s
11.	Volumetric flow rate Ncu.m/Hr	1,02,014 Ncu.m/Hr
12.	Dust concentration mg/Ncu.m (Limit: 150 mg/Ncu.m)	127 mg/Ncu.m
13.	Emission rate Kg/Hr	12.9 Kg/Hr
14.	Name of fuel & quantity used	Washery rejects 600-700 T/Day
15.	Production capacity	2x10 MW
16.	SO <sub>2</sub> mg/Ncu.m	119 mg/Ncu.m
17.	NO <sub>x</sub> mg/Ncu.m	7.2 mg/Ncu.m

## Effluent Quality

SAMPLING DATE: 11.06.2013

LOCATION	LEVELS OF POLLUTANTS								
	Temp in C	Color	pH	TSS	TDS	TS	COD	BOD	Oil & Grease
SEB ash pond	-	Colorless	7.6	22	884	1006	24	5.2	1.0
LIMIT	5 <sup>o</sup> C difference	colorless	6.5-8.5	100 mg/L	2100 mg/L	2200 mg/L	250 mg/L	30 mg/L	10 mg/L

## Ambient Noise Monitoring

LOCATION	NOISE LEVELS dB(A)			
	DURING DAY TIME		DURING NIGHT TIME	
	LIMIT	ACTUAL	LIMIT	ACTUAL
Power House (W. Complex)	75	60-63	70	58-60

Head (Env. & Forests) RMP  
West Bokaro  
Tata Steel