

बोकारो पावर सप्लाय कम्पनी (प्रा.) लिमिटेड  
(जेल एवं डी.वी.सी. का एक संयुक्त उपक्रम)  
हॉल सं.-एम-01, पुराना प्रशासनिक भवन,  
इस्पात भवन, बोकारो स्टील सिटी-827001  
दूरभाष : 06542-223747 (का. एवं प्र.) 240380 (क्र. एवं सं.)  
फैक्स : 06542-247062, 246101 (पावर प्लान्ट)

बो प स क लि  
B P S C L

CIN : U40300DL2001PTC112074

Bokaro Power Supply Company (P) Ltd.  
(A Joint Venture of SAIL & DVC)  
Hall No. M-01, Old ADM Building,  
Ispat Bhawan, Bokaro Steel City - 827001  
Tel : 06542-223747 (P&A), 240380 (P&C)  
Fax : 06542-247062, 246101 (Power Plant)

BPSCL/GM (PP)/EMD/06/5722

To

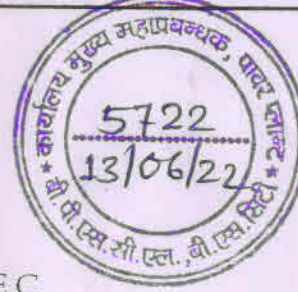
The Member Secretary,  
Jharkhand State Pollution Control Board,  
T.A. Division Building (Ground Floor), H.E.C.  
Dhurwa, Ranchi - 834004

Sub: Environment Statement for year 2021-22

Sir,


Enclosed please find herewith the Environment Statement for the financial year 2021-22 for your kind perusal.

Regards.



Date: 09.06.2022

For & on behalf of BPSCL  
Yours sincerely

  
09.06.2022  
(A.K Das)

CGM (MM,CED&ENV)

## ENVIRONMENT STATEMENT FORM- V

(See Rule 14)

Environment statement for the financial year ending 31<sup>st</sup> march' 2021

### PART A

(i)	Name and address of the owner of the Industry operation or process	Shri K K Thakur, Chief Executive Officer Hall No. M-01, Old ADM Building, Ispat Bhawan, Bokaro Steel City - 827001, Jharkhand
<b>Operation or Process</b>		
(ii)	Industry Category	<b>PRIMARY</b>
(iii)	Production Category -Units	<b>Steam - 2180 TPH Power - 338 MW</b>
(iv)	Year of Establishment	<b>2001</b>
(v)	Date of last Environment Statement submitted	<b>05.06.2021</b>

### PART B

#### WATER AND RAW MATERIAL CONSUMPTION

(i) Water consumption m<sup>3</sup>/day (Basic data 2021-22)

Financial Year	2020-21	2021-22
Process	6197	6607
Cooling	70000	70000
Domestic	1200	1200

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Process water consumption per unit of product output			
Sl.No	Name of Products	During the previous financial year (2020-2021)	During the current financial year (2021-2022)
1.	Steam	0.182 m <sup>3</sup> /T	0.2169 m <sup>3</sup> /T

(ii) RAW MATERIAL CONSUMPTION

Name of Raw**	Name of Products	Consumption of Raw material Per Unit of Output (Per Ton of STEAM)	
		2020-21 During the current financial year (per Ton Steam)	2021-21 During the current financial year (per Ton Steam)
Middling Coal	Steam & Power	144.45 Kg	143.20 Kg
Furnace Oil		0.295 L	0.426 L
Blast Furnace Gas		*187.71	*259.92
Coke Oven Gas		*18.73	*14.97

\* Unit of BF & CO gas is (x 10<sup>3</sup> Nm<sup>3</sup>/hr)

(\*\*Industry may use code if disclosing details of raw material would be violate contractual obligations, otherwise all industries have to name the raw materials used)

PART C

POLLUTION DISCHARGED TO ENVIRONMENT / UNIT OF OUTPUT

(Parameters as specified in the consent order)

Pollutants	Concentration of Pollutants discharged (mass/day) Kg/Ton	Concentrations of Pollutants discharged (Mass/vol.) mg/Nm <sup>3</sup>	% variation from prescribed standards with reasons
(a) Water (TSS)	0.051	.....	The entire water discharge from different outfalls is under 100% recirculation.
(b) AIR (PM <sub>10</sub> )	...	73	Within Prescribed limits.

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**PART D**

**HAZARDOUS WASTES**

(As specified under Hazardous Waste Management and Handling Rules, 1989)

Hazardous Wastes	Total Quantity	
	During the Current financial year (2020-21)	During the Current financial year (2021-22)
Burnt Transformer oil*	Nil	40 KL (In stock) auction already done, to be lifted
Spent Lubricating oil /Industrial Oil**	10.05KL disposed off 15KL (In Stock)	15 KL disposed off
Battery ***	Nil	Nil

**\*Burnt Transformer oil**

Burnt/Waste Industrial Oil oil is been disposed off through auction by M/s MSTC

**\*\*Spent Lubricating Oil/industrial oil**

Spent Turbine Oil and other lubricating oil from gear casings and machines (Industrial Oil) is being disposed off through auction by M/s MSTC to a certified agency of PCB.

**\*\*\*Battery**

Batteries are taken back by the manufacturers under the buyback policy/terms

**PART E**

**SOLID WASTES**

	TOTAL QUANTITY (TONNE)	
	During the current financial Year (2020-21) (T/Yr.)	During the current financial Year (2021-22) (T/Yr.)
1. FROM PROCESS (i) Fly Ash along with bottom ash is being sent to ash pond as ash slurry	5,15,506	5,84,959
2. FROM POLLUTION CONTROL FACILITY	4,12,406	4,67,967
3. QUANTITY RECYCLED /		

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9/6/22

*[Signature]*  
09/06/2022

<b>REUTILIZED WITHIN THE UNIT</b>		
(i) Metal scrap*	About 500 MT	About 1660 MT
(ii) Non Metallic Scrap	30MT Aluminium Cable, Scrap of Dry Type Transformer 610KVA	25 nos. Old DC Motor 15 MT Conveyer belt
(iii) E Waste	1 LOT (In Stock to be auctioned)	1 LOT (In Stock to be auctioned)

Note:

- All Metal scrap is sent back to BSL scrap yard for charging in steel Melting shop of BSL.
- Waste of ACSR conductor, waste of motor winding, CT/ PTs, motors, cables and other nonhazardous solid wastes are e-auctioned through M/s MSTC.
- All E waste is planned to dispose through e-auction BY M/s MSTC .

#### PART F

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

#### Characterization (in terms of composition of quantum) of hazardous as well as solid wastes

SOLID WASTE	COMPOSITION	QTY. (YEAR)
1. Fly Ash	SiO <sub>2</sub>	51.00%
	Al <sub>2</sub> O <sub>3</sub>	7.40%
	TiO <sub>2</sub>	1.36%
	Fe <sub>2</sub> O <sub>3</sub>	2.30%
	FeO	0.059%
	CaO	1.32%
	MgO	1.10%
	Na <sub>2</sub> O	0.02%
	K <sub>2</sub> O	0.45%
	SO <sub>3</sub>	0.22%
	P <sub>2</sub> O <sub>5</sub>	0.01%
	C	9.87%
		Undermined

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## PART G

*(Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production.)*

### TREATMENT FACILITIES AND RE-CIRCULATION OF WATER SUPPLY IN BOKARO STEEL PLANT

#### Industrial Effluent Treatment facilities: (Under SAIL/BSL)

#### Treatment in sludge compartment: (Mainly for Deptts. Under SAIL/BSL)

- a. Ash Pond : Sludge water form ;
  - (i) TPP along with concentrated sludge from BF, GCP local recirculation.
  - (ii) Other Units of Bokaro Steel Plant.
- b. After settlement of suspended particles, clarified water passes through oil catcher where floating oil is separated out. Effluent goes to cooling ponds for recirculation after cooling.

#### Local Recirculation system:

There are the localized re-circulating systems serving in particular area.

#### Domestic Effluent / Sewage Treatment facilities: (Under SAIL/BSL)

Five Nos. of Oxidation ponds with three stages treatment facilities have been provided for treatment township sewage By SAIL/Bokaro Steel Plant.

## PART H

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

### 1. ASH POND MANAGEMENT

- Entire ash pond area is divided in six compartments. Ash slurry from the plant is discharged through 08 no pipelines in a single compartment at a time. When it is fully filled up the ash slurry discharge is diverted into another and in the meantime the filled up pond is evacuated. The evacuated ash is disposed of for filling low lying areas/embankment and for road construction.

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- **Zero discharge** concepts is fully functional for the ash pond effluent is 100% re-circulated so there is no discharge to any water body, hence **NO WATER POLLUTION**.
- Toe Drain (length is about 3 km) has been constructed for seepage water from ash pond which free from ash. The maintenance of the Toe drain is going on regularly.
- **Utilisation of Pond Ash for Road Construction & filling of Low lying area**
  - A. AN MOU has been signed with NHAI, dhanbad for transportation of pond Ash for their Road construction activities-the cost of transportation is being borne by BPSCL. Approximate 1,60,000tonne of ash has been transported and utilized by NHAI in 2020-21.
  - A. A quantity of 1,30,000 cum ash has been filled FOR CONSTRUCTION OF hazardous waste pit of BSL and another 30000cum is under progress.
  - B. Approx. 5,32,680 cum of ash has been used for filling of low lying areas in and around ash pond.

## 2. STACK EMISSION

- All Boilers in Power Plant are provided with Electrostatic Precipitators (ESPs) to restrict Stack Emission. AMC of ESP are being carried out by the OEM and the performance has been quite satisfactory.
- Stack Emission parameters related to all Boilers are found to be well within the prescribed limit of 100mg/ Nm<sup>3</sup> for old Boilers and 50mg/Nm<sup>3</sup> for New Boiler (Unit #9 only) for particulate matter and within the prescribed limit of 600mg/ Nm<sup>3</sup> for Sox and 600mg/ Nm<sup>3</sup> for NO<sub>x</sub>.
- Round the clock surveillance, Monitoring & maintenance of ESPs are done to maintain the prescribed norms.
- An online stack emission monitoring system has been installed and working successfully. Monitoring is being done by Yokogawa System and parameter is displaying in CPCB & JSPCB.
- Third party monthly monitoring and in house monitoring is being carried out on regular basis.

## 3. EFFLUENT DISCHARGE

- Zero Discharge concepts is fully functional for the ash pond effluent and entire effluent is 100% re-circulated so there is no discharge to any water body, hence **NO WATER POLLUTION**.

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- Zero liquid discharge has been installed by BSL where BPSCL effluent is discharged. Waste water after treatment goes to Cooling Pond (water intake reservoir of BSL & BPSCL) through the ZLD system.
- **On-line Effluent Monitoring System** has been installed and working successfully. Real time data transmission is being done through NEVCO server to JSPCB & CPCB.

#### 4. AMBIENT AIR QUALITY (AAQ)

- AAQ monitoring, stack emission monitoring, Noise level monitoring and Effluent water analysis at specified frequency with reporting of data" has been outsourced to and done by M/s Pollution and Project Consultants, Kolkata. Since BPSCL is well within the premises of the Bokaro Steel Plant, the ambient quality is presumed to be similar to that of Bokaro Steel Plant.
- Bokaro Steel Plant has already installed an online AAQ monitoring and data is shared by BPSCL.

#### 5. NOISE POLLUTION

- Noise level is well within the prescribed limit. Noise Level Monitoring has been done by an outsourced agency M/s Pollution and Project Consultants, Kolkata as well as departmentally.

#### 6. DRY ASH COLLECTION SYSTEM

- The dry ash collection system exists and in working condition for CPP Boilers and unit # 9. 4000 tonne of Ash has been utilized in 2020-21.
- We have been supplying fly ash from silo to M/s. Dalmia Cement as per their requirement.
- We have engaged M/s. Orient Exports Private Ltd. for collection of dry fly ash from our silo and supply to the cements plants in Jharkhand or other needful units.
- Fly Ash is being supplied to local brick manufacturers by road.
- Necessary arrangements are being done for utilization of bricks in the plant via circulars both in BPSCL and BSL stating, "only ash bricks is to be used for all construction activities.
- Dry fly ash is being used for in house production of fly ash bricks for internal use.
- One semi- automatic (capacity 8000 to 10000 per shift) and one Manual machine (capacity 2500 to 3000 per shift) have been commissioned for in-house brick

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manufacturing. A total of 25,462 nos. of bricks have been manufactured in-house in 2021-22.

- Fly Ash bricks are being supplied to Bokaro Steel Plant for their internal use. More than Two Lac bricks have been supplied from last year.
- Fly ash is being supplied to local Fly Ash brick manufacturing units as per their demand.
- Two nos of Fly Ash Bagging Machine have been commissioned for bagging of fly ash and transportation to end users by railway wagons.
- 330 mtr. long platform has been erected at railway siding to facilitate easy loading of ash bags into the wagons.
- M/s. M/s. Orient Exports Private Ltd has been engaged to carry out bagging of dry fly ash and transport them to END users through railway wagons. 5 Rakes have been already sent to Darshana, Bangladesh.

#### 7. RAIN WATER CONSERVATION/ HARVESTING MANAGEMENT

- The existing power plant has a well-designed storm drainage system.
- A network of drains collects the storm water and discharges the same to cooling pond of Bokaro Steel Plant.
- The cooling pond also acts as the raw water reservoir
- The water collected in the cooling pond also recharges the ground water table.
- Installation of Rain Water Harvesting for individual buildings is under progress.

#### PART I

*(Any other particulars for improving the quality of the environment)*

#### Scientific Green Belt Development in and around BPSCL

Total No of trees Planted in township till date (in line with BSL)	4550000
Total No of trees Planted inside BPSCL premises	24000

H/O  
9/8/22

*[Signature]*  
09/08/2022



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E-mail : rvbriggs.kolkata@gmail.com, Website : www.rvbriggs.com

CIN : U51109WB1931PTC007007



TC-7815

## TEST REPORT

ULR NO. TC781522100001879F

No. W(D)/21-22/3121

Date : March 29, 2022

Page 1 of 2

Issued to : M/S, BOKARO POWER SUPPLY COMPANY (P) LTD.

Hall No. M-01, Old ADM Building, Ispat Bhawan, Bokaro Steel City - 827001

Sample Description : Drinking Water

Collection Source : From Mahuar Village Tubewell

Parameters Tested:

Chemical Parameters

Aluminium, Barium, Copper, Magnesium, Zinc,

Manganese, Selenium, Sulphate, Cadmium, Nickel,

Lead, Mercury, Arsenic, Total Chromium

Sample Drawn by us On : 17.03.2022

Test Completed on : 25.03.2022

Method of Sampling : IS : 3025 (Part - 1) 1987

Mode of Sampling : Grab

### Chemical Test Findings :

Sl No.	Test parameters	Test Method	Unit	Result	Norms as per IS: 10500, 2012 (2nd Rev.)	
					Acceptable Limit	Permissible Limit
1	Aluminium as Al	IS: 3025 (Part-55): 2003	mg/l	<0.03	0.03 Max.	0.2 Max.
2	Barium as Ba	IS: 13428: Annex F	mg/l	<0.5	0.7 Max.	No Relaxation
3	Copper as Cu	IS: 3025 (Part-42): 1992 Reaff. 2009	mg/l	<0.05	0.05 Max.	1.5 Max.
4	Magnesium as Mg	IS: 3025 (Part-46): 1994 Reaff. 2009	mg/l	31.4	30 Max.	100 Max.
5	Manganese as Mn	IS: 3025 (Part-59): 2006 Reaff. 2012	mg/l	< 0.05	0.1 Max.	0.3 Max.
6	Selenium as Se	IS: 3025 (Part-56): 2003 Reaff. 2009	mg/l	<0.01	0.01 Max.	No Relaxation
7	Sulphate as SO <sub>4</sub>	IS: 3025 (Part-24): 1986 Reaff. 2009	mg/l	78.7	200 Max.	400 Max.
8	Zinc as Zn	IS: 3025 (Part-49): 1994 Reaff. 2009	mg/l	< 0.05	5 Max.	15 Max.
9	Cadmium as Cd	IS: 3025 (Part-41): 1992 Reaff. 2009	mg/l	<0.002	0.003 Max.	No Relaxation
10	Lead as Pb	IS: 3025 (Part-47): 1994 Reaff. 2009	mg/l	<0.01	0.01 Max.	No Relaxation
11	Mercury as Hg	IS: 3025 (Part-48): 1994 Reaff. 2009	mg/l	<0.001	0.001 Max.	No Relaxation
12	Nickel as Ni	IS: 3025 (Part - 54) 2003	mg/l	<0.01	0.02 Max.	No Relaxation
13	Arsenic as As	IS: 3025 (Part-37): 1988 Reaff. 2009	mg/l	<0.002	0.01 Max.	No Relaxation
14	Total Chromium as Cr	IS: 3025 (Part-52): 2003 Reaff. 2009	mg/l	<0.05	0.05 Max.	No Relaxation

### Minimum detection limit :

i) Aluminium : 0.03mg/l (ii) Barium : 0.5mg/l (iii) Copper : 0.05mg/l (iv) Selenium : 0.01mg/l (v) Lead : 0.01mg/l (vi) Cadmium : 0.002mg/l (vii) Mercury : 0.001mg/l (viii) Nickel : 0.01mg/l (ix) Arsenic : 0.002mg/l (x) Total Chromium : 0.05mg/l (xi) Manganese : 0.05mg/l (xii) Zinc : 0.05mg/l

### Remarks on Chemical Test Report :

The above mentioned sample of drinking water complies with IS: 10500, 2012 (2nd Rev.) & Satisfactory for drinking purpose, in respect of the above mentioned parameters.

: END OF TEST REPORT :

  
Report Verified by  
(J. DAS)

  
J. Mukherjee  
Quality Manager  
Authorized Signatory  
For R.V.BRIGGS & CO. PRIVATE LTD.

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- \* Results relate only to the parameters tested.



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E-mail : rvbriggs.kolkata@gmail.com, Website : www.rvbriggs.com

CIN : U51109WB1931PTC007007

## TEST REPORT

No. W(D)/21-22/3123

Date : March 29, 2022

Page 2 of 2

Issued to : M/S, BOKARO POWER SUPPLY COMPANY (P) LTD.  
Hall No. M-01, Old ADM Building, Ispat Bhawan, Bokaro Steel City - 827001

Sample Description : Surface Water  
Collection Source : Pond Water From Kanchanpur Village near Ash Pond

Sample Drawn by us On : 17.03.2022  
Test Completed on : 25.03.2022

Method of Sampling : IS : 3025 (Part - 1) 1987  
Mode of Sampling : Grab

**Parameters Tested:**  
**Chemical Parameters**  
Aluminium, Barium, Magnesium, Nickel, Manganese, Mercury, Alpha emitters & Beta emitters

### Chemical Test Findings :

Sl No.	Test parameters	Test Method	Unit	Result
9	Aluminium as Al	IS: 3025 (Part-55): 2003	mg/l	<0.03
10	Barium as Ba	IS: 13428: Annex F	mg/l	<0.5
11	Magnesium as Mg	IS: 3025 (Part-46): 1994 Reaff. 2009	mg/l	31.4
12	Manganese as Mn	IS: 3025 (Part-59): 2006 Reaff. 2012	mg/l	0.265
13	Mercury as Hg	IS: 3025 (Part-48): 1994 Reaff. 2009	mg/l	<0.001
14	Nickel as Ni	IS: 3025 (Part - 54) 2003	mg/l	<0.01
1a)	Alpha emitters	APHA 22nd Edn. 7110B	Bq/l	Not detectable
1b)	Beta emitters	APHA 22nd Edn. 7110B	Bq/l	Not detectable

### Minimum detection :

i) Aluminium : 0.03mg/l (ii) Barium : 0.5mg/l (iii) Nickel : 0.01mg/l (iv) Mercury : 0.001mg/l

: END OF TEST REPORT :

  
Report Verified by  
(J. Das)

  
J. Mukherjee  
Quality Manager  
Authorized Signatory  
For R.V.BRIGGS & CO. PRIVATE LTD.



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CIN : U51109WB1931PTC007007



TC-7815

## TEST REPORT

No. W(D)/21-22/3122	Date : March 29, 2022	Page 1 of 2
Issued to	: M/S, BOKARO POWER SUPPLY COMPANY (P) LTD. Hall No. M-01, Old ADM Building, Ispat Bhawan, Bokaro Steel City - 827001	
Sample Description	: Surface Water	<b>Parameters Tested:</b> <b>Chemical Parameters</b> Copper, Zinc, Lead, Sulphate, Cadmium, Selenium, Sulphate, Cadmium, Arsenic & Total Chromium
Collection Source	: From Ash Pond Area	
Sample Drawn by us On	: 17.03.2022	
Test Completed on	: 25.03.2022	
Method of Sampling	: IS : 3025 (Part - 1) 1987	
Mode of Sampling	: Grab	

### Chemical Test Findings :

Sl. No.	Test Parameters	Test Specification	Unit		Norms as per IS:2296:1982(Class C)
1	Copper as Cu	IS: 3025 (Part-42): 1992 Reaffirmed 2009	mg/l	< 0.05	1.5 Max
2	Selenium as Se	IS: 3025 (Part-56): 2003 Reaffirmed 2009	mg/l	< 0.01	0.05 Max
3	Sulphates as SO <sub>4</sub>	IS: 3025 (Part-24): 1986 Reaffirmed 2009	mg/l	24.7	400 Max
4	Zinc as Zn	IS: 3025 (Part-49): 1994 Reaffirmed 2009	mg/l	0.64	15 Max
5	Cadmium as Cd	IS: 3025 (Part-41): 1992 Reaffirmed 2009	mg/l	< 0.002	0.01 Max
6	Lead as pb	IS: 3025 (Part-47): 1994 Reaffirmed 2009	mg/l	< 0.01	0.1 Max
7	Arsenic as As	IS: 3025 (Part-37): 1988 Reaffirmed 2009	mg/l	0.004	0.2 Max
8	Chromium Hexavalent as Cr	IS: 3025 (Part-52): 2003 Reaffirmed 2009	mg/l	< 0.05	0.05 Max

### Minimum detection limit :

i) Copper : 0.05mg/l (ii) Selenium : 0.01mg/l (iii) Cadmium : 0.002mg/l (iv) Lead : 0.01mg/l (v) Total Chromium : 0.05mg/l

### Remarks on Chemical Test Report :

The above mentioned sample of Surface water complies with IS:2296:1982(Class C) & Satisfactory, in respect of the above mentioned parameters.

: END OF TEST REPORT :

  
Report Verified by  
(J. DAS)

  
J. Mukherjee  
Quality Manager  
Authorized Signatory

For R.V.BRIGGS & CO. PRIVATE LTD.

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33 4007-5880/4066-1585/4600-1228/4008-4438

E-mail : rvbriggs.kolkata@gmail.com, Website : www.rvbriggs.com

CIN : U51109WB1931PTC007007

## TEST REPORT

No. W(D)/21-22/3121	Date : March 29, 2022	Page 2 of 2
Issued to	: M/S, BOKARO POWER SUPPLY COMPANY (P) LTD. Hall No. M-01, Old ADM Building, Ispat Bhawan, Bokaro Steel City - 827001	
Sample Description	: Drinking Water	Parameters Tested: Chemical Parameters Radioactive Parameters Alpha emitters, Beta emitters
Collection Source	: From Mahuar Village Tubewell	
Sample Drawn by us On	: 17.03.2022	
Test Completed on	: 25.03.2022	
Method of Sampling	: IS : 3025 (Part - 1) 1987	
Mode of Sampling	: Grab	

### Chemical Test Findings :

Sl No.	Test parameters	Test Method	Unit	Result	Norms as per IS: 10500, 2012 (2nd Rev.)	
					Acceptable Limit	Permissible Limit
1a)	Alpha emitters	APHA 22nd Edn. 7110B	Bq/l	Not detectable	0.1 Max.	No Relaxation
1b)	Beta emitters	APHA 22nd Edn. 7110B	Bq/l	Not detectable	1.0 Max.	No Relaxation

### Remarks on Chemical Test Report :

The above mentioned sample of drinking water complies with IS: 10500, 2012 (2nd Rev.) & Satisfactory for drinking purpose, in respect of the above mentioned parameters.

: END OF TEST REPORT :

  
Report Verified by  
(J. DAS)

  
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CIN : U51109WB1931PTC007007



TC-7815

## TEST REPORT

No. W(D)/21-22/3123 Date : March 29, 2022 Page 1 of 2

Issued to	: M/S, BOKARO POWER SUPPLY COMPANY (P) LTD. Hall No. M-01, Old ADM Building, Ispat Bhawan, Bokaro Steel City - 827001		
Sample Description	: Surface Water	<b>Parameters Tested:</b> <b>Chemical Parameters</b> Copper, Zinc, Lead, Sulphate, Cadmium, Selenium, Sulphate, Cadmium, Arsenic & Total Chromium	
Collection Source	: Pond Water From Kanchanpur Village near Ash Pond		
Sample Drawn by us On	: 17.03.2022		
Test Completed on	: 25.03.2022		
Method of Sampling	: IS : 3025 (Part - 1) 1987		
Mode of Sampling	: Grab		

### Chemical Test Findings :

Sl. No.	Test Parameters	Test Specification	Unit		Norms as per IS:2296:1982(Class C)
1	Copper as Cu	IS: 3025 (Part-42): 1992 Reaffirmed 2009	mg/l	< 0.05	1.5 Max
2	Selenium as Se	IS: 3025 (Part-56): 2003 Reaffirmed 2009	mg/l	< 0.01	0.05 Max
3	Sulphates as SO <sub>4</sub>	IS: 3025 (Part-24): 1986 Reaffirmed 2009	mg/l	50.0	400 Max
4	Zinc as Zn	IS: 3025 (Part-49): 1994 Reaffirmed 2009	mg/l	0.64	15 Max
5	Cadmium as Cd	IS: 3025 (Part-41): 1992 Reaffirmed 2009	mg/l	< 0.002	0.01 Max
6	Lead as pb	IS: 3025 (Part-47): 1994 Reaffirmed 2009	mg/l	< 0.01	0.1 Max
7	Arsenic as As	IS: 3025 (Part-37): 1988 Reaffirmed 2009	mg/l	0.004	0.2 Max
8	Total Chromium as Cr	IS: 3025 (Part-52): 2003 Reaffirmed 2009	mg/l	< 0.05	0.05 Max

### Minimum detection limit :

i) Copper : 0.05mg/l (ii) Selenium : 0.01mg/l (iii) Cadmium : 0.002mg/l (iv) Lead : 0.01mg/l (v) Total Chromium : 0.05mg/l

### Remarks on Chemical Test Report :

The above mentioned sample of Surface water complies with IS:2296:1982(Class C) & Satisfactory, in respect of the above mentioned parameters.

: END OF TEST REPORT :

  
Report Verified by  
(J. DAS)

  
J. Mukherjee  
Quality Manager  
Authorized Signatory  
For R.V.BRIGGS & CO. PRIVATE.LTD.



# R. V. BRIGGS & CO. PRIVATE LTD.

ANALYTICAL CONSULTING & TECHNICAL CHEMISTS  
(AN ISO 9001:2015 CERTIFIED COMPANY)

TAHER MANSION, 1ST FLOOR

9, BENTINCK STREET, KOLKATA - 700 001

Ph. : 2248-3661/2698/7803, 2262-4153/4154, Fax : 33 2248-0447

33 4007-5880/4066-1585/4600-1228/4008-4438

E-mail : rvbriggs.kolkata@gmail.com, Website : www.rvbriggs.com

CIN : U51109WB1931PTC007007

## TEST REPORT

No. W(D)/21-22/3122	Date : March 29, 2022	Page 2 of 2
Issued to	: M/S, BOKARO POWER SUPPLY COMPANY (P) LTD. Hall No. M-01, Old ADM Building, Ispat Bhawan, Bokaro Steel City - 827001	
Sample Description	: Surface Water	<b>Parameters Tested:</b> <b>Chemical Parameters</b> Aluminium, Barium, Magnesium, Nickel, Manganese, Mercury, Alpha emitters & Beta emitters
Collection Source	: From Ash Pond Area	
Sample Drawn by us On	: 17.03.2022	
Test Completed on	: 25.03.2022	
Method of Sampling	: IS : 3025 (Part - 1) 1987	
Mode of Sampling	: Grab	

### Chemical Test Findings :

Sl No.	Test parameters	Test Method	Unit	Result
9	Aluminium as Al	IS: 3025 (Part-55): 2003	mg/l	<0.03
10	Barium as Ba	IS: 13428: Annex F	mg/l	<0.5
11	Magnesium as Mg	IS: 3025 (Part-46): 1994 Reaff. 2009	mg/l	31.4
12	Manganese as Mn	IS: 3025 (Part-59): 2006 Reaff. 2012	mg/l	0.265
13	Mercury as Hg	IS: 3025 (Part-48): 1994 Reaff. 2009	mg/l	<0.001
14	Nickel as Ni	IS: 3025 (Part - 54) 2003	mg/l	<0.01
1a)	Alpha emitters	APHA 22nd Edn. 7110B	Bq/l	Not detectable
1b)	Beta emitters	APHA 22nd Edn. 7110B	Bq/l	Not detectable

### Minimum detection :

i) Aluminium : 0.03mg/l (ii) Barium : 0.5mg/l (iii) Nickel : 0.01mg/l (iv) Mercury : 0.001mg/l

: END OF TEST REPORT :

Report Verified by  
(J. DAS)

J. Mukherjee  
Quality Manager

Authorized Signatory

For R.V. BRIGGS & CO. PRIVATE LTD.



# R. V. BRIGGS & CO. PRIVATE LTD.

ANALYTICAL CONSULTING & TECHNICAL CHEMISTS  
(AN ISO 9001:2015 & ISO 45001: 2018 CERTIFIED COMPANY)

TAHER MANSION, 1ST FLOOR  
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Phone : (033) 4044-3380/3381/3382 / 3383, Fax : 33 2248-0447  
E-mail : rvbriggs.kolkata@gmail.com, Website : www.rvbriggs.com  
CIN : U51109WB1931PTC007007

## TEST REPORT

No.C(D)/21-22/151

Date: 28 March 2022

Page 1 of 1

Issued to : M/s. BOKARO POWER SUPPLY COMPANY (P) LTD.  
Hall No.M-01, Old ADM Building, Ispat Bhawan,  
Bokaro Steel City-827001

Your Ref. No. : W.O. no.BPSCL/P&C/19-20/C-059/LTE/50135/3711 dtd. 8.11.19

Description of sample : Coal

Collection Source : Coal handling Plant

Sample Drawn by us on : 17.03.2022

Analysis Completed on : 26.03.2022

### TEST FINDINGS:

#### ANALYSIS ON AIR DRIED BASIS

Sl. No.	Test Parameters	Test Method	Unit	Results
01.	Ash content	IS :1350 (Part-I)-1984	% (w/w)	44.16
02.	Sulphur	IS :1350 (Part-III)-1969	% (w/w)	0.48
03.	Carbon	IS :1350 (Part-I)-1984	% (w/w)	35.82
04.	Mercury as Hg	Mercury Analyser	mg/kg	3.26
05.	Lead as Pb	By A.A.S.	mg/kg	182.4
06.	Chromium as Cr	By A.A.S.	mg/kg	320.5
07.	Arsenic as As	By A.A.S.	mg/kg	5.24

( T. NANDI )  
Technical Manager  
Authorised Signatory





# R. V. BRIGGS & CO. PRIVATE LTD.

ANALYTICAL CONSULTING & TECHNICAL CHEMISTS  
(AN ISO 9001:2015 & ISO 45001: 2018 CERTIFIED COMPANY)

TAHER MANSION, 1ST FLOOR  
9, BENTINCK STREET, KOLKATA - 700 001  
Phone : (033) 4044-3380/3381/3382 / 3383, Fax : 33 2248-0447  
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CIN : U51109WB1931PTC007007

## TEST REPORT

No.CA(D)/21-22/152

Date: 28 March 2022

Page 1 of 1

Issued to : M/s. BOKARO POWER SUPPLY COMPANY (P) LTD.  
Hall No.M-01, Old ADM Building, Ispat Bhawan,  
Bokaro Steel City-827001  
Your Ref. No. : W.O. no.BPSCL/P&C/19-20/C-059/LTE/50135/3711 dtd. 8.11.19  
Description of sample : Ash  
Collection Source : Ash Pond  
Sample Drawn by us on : 17.03.2022  
Analysis Completed on : 26.03.2022

### TEST FINDINGS:

Sl. No.	Test Parameters	Unit	Results
01.	Unburnt Carbon (Dry Basis)	% (w/w)	9.87
02.	Sulphur	% (w/w)	0.08
03.	Mercury as Hg	mg/kg	5.82
04.	Lead as Pb	mg/kg	276.2
05.	Chromium as Cr	mg/kg	165.7
06.	Arsenic as As	mg/kg	2.24

( T. NANDI )  
Technical Manager  
Authorised Signatory



मेकॉन लिमिटेड, रांची-834 002  
MECON LIMITED, RANCHI-834002

REF:- MEC.11.S2.Q6VS.03.4.01

Env. Engg. Section  
Date - 04.02.2021

To,

GM, I/c (MM), BPSCL,  
Bokaro Power Supply Co. (P) Ltd.,  
Hall No. M-01, Old ADM Building,  
Ispat Bhawan,  
Bokaro Steel City - 827 001

Sub. :- Leachate and Chemical Study for 02 Nos. Ash Sample  
Ref. :- Work order no. BPSCL/MM.20-21/C-097/STE/05166/45 dated 05.01.2021

Dear Sir,

Please find enclosed herewith the analysis report of two number fly ash samples. These samples were analysed for desired parameters as per above mentioned work order. Analyzed report of leachate and chemical parameters of fly ash collected from pond ash and dry fly ash attached herewith

Thanking you and assuring you of our best services at all times.

Yours faithfully  
for MECON Limited

(Dr. S. Chakraborty)  
GM (Sc.)

डॉ. स. चक्रवर्ती  
Dr. S. Chakraborty  
संशोधक (विज्ञान)  
General Manager (Science)  
पर्यावरणीय इंजीनियरिंग अनुभाग  
Environmental Engineering Section  
(भारत सरकार का संस्थान)  
(A Govt. of India Enterprise)  
मेकॉन लिमिटेड, रांची-834002(झारखण्ड)  
MECON LIMITED, Ranchi-834002, Jharkhand



No. 11.S2.Q6VS.03.4.BPSCL.01

मेकॉन लिमिटेड, रांची - 834 002  
MECON LIMITED, RANCHI - 834 002

पर्या. अभि. विभाग/ Env. Engg. Sec.  
दिनांक/ Date: 4.02.2021  
Page No. Page 2 of 2

### CHEMICAL ANALYSIS REPORT

Date of sample received at Env. Engg. Lab : 11.01.2021

Sample type: Pond Ash & Dry fly ash collected by BPSCL

Sl. No.	Parameters	Unit	Analysis Result	
			Pond Ash	Dry Fly Ash
1	Aluminium as Al	%	7.4	5.4
2	Potassium as K	%	0.45	0.30
3	Iron as Fe	%	2.3	1.33
4	Magnesium as Mg	%	1.1	1.4
5	Sulphate as SO <sub>4</sub>	%	0.22	0.24
6	Phosphate as PO <sub>4</sub>	%	0.01	0.02
7	Silica as SiO <sub>2</sub>	%	51.0	45.0
8	Sodium as Na	%	0.02	0.022
9	Loss of Ignition (LOI)	%	4.01	5.87
10	Bulk Density	gm/cc	0.87	0.90
11	Colour	Hazen	Grey	Light grey
12	Chromium as Cr	mg/L	0.362	0.515
13	Copper as Cu	mg/L	0.175	0.187
14	Zinc as Zn	mg/L	0.057	<0.05
15	Lead as Pb	mg/L	0.089	0.089
16	Nickel as Ni	mg/L	<0.01	<0.01
17	Cadmium as Cd	mg/L	0.082	0.021
18	Mercury as Hg	mg/L	<0.0005	<0.0005

SAMPLE NOT COLLECTED BY  
ENVIRONMENTAL ENGINEERING LABORATORY  
MECON LIMITED, RANCHI

ENVIRONMENTAL ENGINEERING LABORATORY  
MECON LIMITED, RANCHI - 834 002

*Rajendra*  
ANALYSED BY

*Sumana*  
CHECKED BY



No. 11.S2.Q6VS.03.4.BPSCL.01

मेकॉन लिमिटेड, रांची - 834 002  
MECON LIMITED, RANCHI - 834 002

पर्या. अभि. विभाग/ Env. Engg. Sec.

दिनांक/ Date: 4.02.2021

Page No. Page 1 of 2

**LEACHATE ANALYSIS REPORT**

Date of samples received at Env. Engg. Lab : 11.01.2021

Sample type: Pond Ash &amp; Dry fly ash collected by BPSCL

Sl. No.	Parameters	Unit	Test Method	Govt. of India, MoEF&CC Schedule-II based on leachable concentration limits (TCLP) or soluble Threshold limit Concentration (SLTC) Class-A, 2016	Analysis Result	
					Pond Ash	Dry Fly Ash
1	Arsenic as As	mg/L	Leachate study following US-EPA method - 1311 for TCLP followed by metal analysis using 4200 MP-AES instrument, Agilent	5.0	<0.01	0.032
2	Barium as Ba	mg/L		100.0	0.445	0.127
3	Cadmium as Cd	mg/L		1.0	<0.01	<0.01
4	Chromium as Cr	mg/L		5.0	<0.01	<0.01
5	Manganese as Mn	mg/L		10.0	<0.01	<0.01
6	Mercury as Hg	mg/L		0.2	<0.0005	<0.0005
7	Silver as Ag	mg/L		5.0	<0.01	<0.01
8	Iron as Fe	mg/L		---	0.059	<0.05
9	Cobalt as Co	mg/L		80.0	<0.05	<0.05
10	Copper as Cu	mg/L		25.0	0.033	0.041
11	Molybdenum as Mo	mg/L		350.0	<0.01	<0.01
12	Nickel as Ni	mg/L		20.0	0.044	0.060
13	Vanadium as V	mg/L		24.0	<0.05	0.494
14	Zinc as Zn	mg/L		250.0	<0.05	<0.05
15	Hexavalent Chromium as Cr <sup>+6</sup>	mg/L		5.0	<0.05	<0.05
16	Ammonia as NH <sub>3</sub>	mg/L		50.0	7.84	5.60
17	Cyanide as CN <sup>-</sup>	mg/L		20.0	<0.01	<0.01
18	Nitrate as NO <sub>3</sub>	mg/L		1000.0	167	55
19	Sulphide as H <sub>2</sub> S	mg/L		5.0	5.0	4.8
20	Fluoride as F <sup>-</sup>	mg/L		180.0	3.17	9.13

SAMPLE COLLECTED BY  
ENVIRONMENTAL ENGINEERING  
LABORATORYENVIRONMENTAL ENGINEERING  
LABORATORYB. R. JAIN  
HEADS. K. JAIN  
HEAD

**REPORTS  
ON  
STACK EMISSION, AMBIENT AIR,  
NOISE LEVEL & EFFLUENT WATER  
MONITORING AND ANALYSIS**

**OF**

**M/s. BOKARO POWER SUPPLY COMPANY (P) LTD.,  
BOKARO STEEL CITY, JHARKHAND**

**(PERIOD: APRIL, 2022)**

**Reports Prepared By:**

**POLLUTION AND PROJECT CONSULTANTS,**

**P-145, Bangur Avenue, Block – A,**

**Kolkata – 700 055**

**Phone: (033) 2574-3418**



# POLLUTION AND PROJECT CONSULTANTS

ENVIRONMENTAL POLLUTION CONTROL - Air, Effluent, Pharmaceuticals & Chemical Project Engineers. EIA & Disaster Management Study

FORMAT NO. PPC/FM/67

ISSUE NO. 03

ISSUE Dt. 01/01/2017 (Rev No. 02 Rev. Dt.: 28/05/2018)

Page.: 1 of 1

## TEST REPORT STACK GAS

<b>Customer Name</b> : M/s. Bokaro Power Supply Company (P) Ltd.,	<b>Report No.</b> : G/22(04)/21			
<b>Address</b> : Bokaro Steel City, Bokaro, Jharkhand	<b>Report Date</b> : 29-04-2022			
	<b>Date of Sampling</b> : 20-04-2022			
	<b>Time of Sampling</b> : 10:40 A.M.			
	<b>Sample Received Date</b> : 24-04-2022			
	<b>Sample Id No.</b> : GS/22(04)/21			
<b>Type of Sample</b> : Stack Air	<b>Test Start Date</b> : 24-04-2022			
<b>Sampling Location</b> : Boiler Unit # 2	<b>Test End Date</b> : 29-04-2022			
<b>A : GENERAL INFORMATION ABOUT STACK :</b>	<b>C : ANALYSIS/CHARACTERISTICS OF FUEL :</b>			
1 Stack connected to : Boiler Unit # 2	1 Emission due to : Burning of Fuel			
2 a) Material of construction of the Stack : R.C.C.	2 Fuel used : Coal+ B.F.Gas +CO.Gas			
b) Material of construction of the Duct : M.S.	3 Fuel consumption : Coal: 7 (TPH),			
3 a) Shape of the stack : Circular	B.F.Gas: 67000 (M <sup>3</sup> /Hr), CO Gas : 5800 (M <sup>3</sup> /Hr)			
b) Shape of the duct : Rectangular	4 Calorific value (k-cal/kg) : --			
4 Height of the stack :	5 Sulphur content (% by wt) : --			
a) From Ground Level (M) : 180	6 Ash content (% by wt) : --			
b) From Roof Level (M) : --	7 Air flow : --			
5 Dimension of the duct :	<b>D : STEAM GENERATION CAPACITY:</b>			
a) Top (M) : --	a) Rated : 140.0 Ton/Hr.			
b). Bottom (M) : --	b) Running : --			
c) Sampling Point (M) : 1.5 X 1.3	<b>Load:</b> a) Rated : --			
6 Height of the Sampling Port :	b) Running : --			
a) From Ground Level (M) : --	<b>E : Pollution control device</b> : ESP			
b) From Lower Disturbing Zone (M) : --				
7 Whether Stack is provided with permanent Platform/Ladder : Yes				
<b>B : Result of Sampling</b>				
<b>Sl.</b>	<b>Parameters tested</b>	<b>Unit</b>	<b>Method of Test (Reference)</b>	<b>Result</b>
1	TEMPERATURE OF EMISSION	deg C	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 157
2	BAROMETRIC PRESSURE	mmHg	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 757
3	VELOCITY OF GAS FLOW	M/Sec	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 21.73
4	QUANTITY OF GAS FLOW	Nm <sup>3</sup> /Hr.	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 102706.5
5	CONCENTRATION OF PARTICULATE MATTER	mg/Nm <sup>3</sup>	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 50
6	PARTICULATE MATTER NORMALISED TO 12% CO <sub>2</sub>	mg/Nm <sup>3</sup>	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 55.5
7	CONCENTRATION OF SULPHUR DIOXIDE	mg/Nm <sup>3</sup>	IS 11255 (Part 2): 1985 (RA 2014)	: 53
8	CONCENTRATION OF NITROGEN DIOXIDE	mg/Nm <sup>3</sup>	IS 11255 (Part 7): 2005 (RA 2017)	: 66
9	CONCENTRATION OF OXYGEN	% v/v	APHA ( Air Analysis) (3 <sup>rd</sup> Edition) Method -134	: 9.2
10	CONCENTRATION OF CARBON DIOXIDE	% v/v	APHA ( Air Analysis) (3 <sup>rd</sup> Edition) Method -134	: 10.8
11	CONCENTRATION OF CARBON MONOXIDE	% v/v	APHA ( Air Analysis) (3 <sup>rd</sup> Edition) Method -134	: <0.2

The results relate only to the parameter

.....end of report .....



Authorized Signatory

For Pollution and Project Consultants

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LABORATORY FOR ANALYSIS OF AIR, WATER, EFFLUENT, SOIL, SLUDGE, SOLIDWASTE, COAL, ORE. ETC.

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# POLLUTION AND PROJECT CONSULTANTS

ENVIRONMENTAL POLLUTION CONTROL - Air, Effluent, Pharmaceuticals & Chemical Project Engineers. EIA & Disaster Management Study

FORMAT NO. PPC/FM/67

ISSUE NO. 03

ISSUE Dt. 01/01/2017 (Rev No. 02 Rev. Dt.: 28/05/2018)

Page.: 1 of 1

## TEST REPORT STACK GAS

<b>Customer Name</b> : M/s. Bokaro Power Supply Company (P) Ltd.,	<b>Report No.</b> : G/22(04)/23			
<b>Address</b> : Bokaro Steel City, Bokaro, Jharkhand	<b>Report Date</b> : 29-04-2022			
	<b>Date of Sampling</b> : 20-04-2022			
	<b>Time of Sampling</b> : 02:50 P.M.			
	<b>Sample Received Date</b> : 24-04-2022			
	<b>Sample Id No.</b> : GS/22(04)/23			
<b>Type of Sample</b> : Stack Air	<b>Test Start Date</b> : 24-04-2022			
<b>Sampling Location</b> : Boiler Unit # 4	<b>Test End Date</b> : 29-04-2022			
<b>A : GENERAL INFORMATION ABOUT STACK :</b>	<b>C : ANALYSIS/CHARACTERISTICS OF FUEL :</b>			
1 Stack connected to : Boiler Unit # 4	1 Emission due to : Burning of Fuel			
2 a) Material of construction of the Stack : R.C.C.	2 Fuel used : Coal+ B.F.Gas +CO.Gas			
b) Material of construction of the Duct : M.S.	3 Fuel consumption : Coal: 8 (TPH),			
3 a) Shape of the stack : Circular	B.F.Gas: 49900 (M <sup>3</sup> /Hr), CO Gas: 4500 (M <sup>3</sup> /Hr)			
b) Shape of the duct : Rectangular	4 Calorific value (k-cal/kg) : --			
4 Height of the stack :	5 Sulphur content (% by wt) : --			
a) From Ground Level (M) : 180	6 Ash content (% by wt) : --			
b) From Roof Level (M) : --	7 Air flow : --			
5 Dimension of the duct :	<b>D : STEAM GENERATION CAPACITY:</b>			
a) Top (M) : --	a) Rated : 148.0 Ton/Hr			
b) Bottom (M) : --	b) Running : --			
c) Sampling Point (M) : 1.5 X 1.3	<b>Load:</b> a) Rated : --			
6 Height of the Sampling Port :	b) Running : --			
a) From Ground Level (M) : --	<b>E : Pollution control device</b> : ESP			
b) From Lower Disturbing Zone (M) : --				
7 Whether Stack is provided with permanent Platform/Ladder : Yes				
<b>B : Result of Sampling</b>				
<b>Sl. No.</b>	<b>Parameters tested</b>	<b>Unit</b>	<b>Method of Test (Reference)</b>	<b>Result</b>
1	TEMPERATURE OF EMISSION	deg C	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 179
2	BAROMETRIC PRESSURE	mmHg	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 757
3	VELOCITY OF GAS FLOW	M/Sec	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 21.92
4	QUANTITY OF GAS FLOW	Nm <sup>3</sup> /Hr.	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 101050.3
5	CONCENTRATION OF PARTICULATE MATTER	mg/Nm <sup>3</sup>	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 44
6	PARTICULATE MATTER NORMALISED TO 12% CO <sub>2</sub>	mg/Nm <sup>3</sup>	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 50.76
7	CONCENTRATION OF SULPHUR DIOXIDE	mg/Nm <sup>3</sup>	IS 11255 (Part 2): 1985 (RA 2014)	: 59
8	CONCENTRATION OF NITROGEN DIOXIDE	mg/Nm <sup>3</sup>	IS 11255 (Part 7): 2005 (RA 2017)	: 60
9	CONCENTRATION OF OXYGEN	% v/v	APHA ( Air Analysis) (3 <sup>rd</sup> Edn.) Method -134	: 9.6
10	CONCENTRATION OF CARBON DIOXIDE	% v/v	APHA ( Air Analysis) (3 <sup>rd</sup> Edn.) Method -134	: 10.4
11	CONCENTRATION OF CARBON MONOXIDE	% v/v	APHA ( Air Analysis) (3 <sup>rd</sup> Edn.) Method -134	: <0.2

The results relate only to the parameter

.....end of report .....



*Thakurbaran*  
Authorized Signatory

For Pollution and Project Consultants

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LABORATORY FOR ANALYSIS OF AIR, WATER, EFFLUENT, SOIL, SLUDGE, SOLIDWASTE, COAL, ORE. ETC.

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Page.: 1 of 1

## TEST REPORT STACK GAS

<b>Customer Name</b> : M/s. Bokaro Power Supply Company (P) Ltd.,	<b>Report No.</b> : G/22(04)/22			
<b>Address</b> : Bokaro Steel City, Bokaro, Jharkhand	<b>Report Date</b> : 29-04-2022			
	<b>Date of Sampling</b> : 20-04-2022			
	<b>Time of Sampling</b> : 12:40 P.M.			
	<b>Sample Received Date</b> : 24-04-2022			
	<b>Sample Id No.</b> : GS/22(04)/22			
<b>Type of Sample</b> : Stack Air	<b>Test Start Date</b> : 24-04-2022			
<b>Sampling Location</b> : Boiler Unit # 3	<b>Test End Date</b> : 29-04-2022			
<b>A : GENERAL INFORMATION ABOUT STACK :</b>				
1 Stack connected to : Boiler Unit # 3	<b>C : ANALYSIS/CHARACTERISTICS OF FUEL :</b> 1 Emission due to : Burning of Fuel 2 Fuel used : Coal+ B.F.Gas +CO.Gas 3 Fuel consumption : Coal: 7 (TPH), B.F.Gas: 54000 (M <sup>3</sup> /Hr), CO Gas: 8000 (M <sup>3</sup> /Hr) 4 Calorific value (k-cal/kg) : -- 5 Sulphur content (% by wt) : -- 6 Ash content (% by wt) : -- 7 Air flow : -- <b>D : STEAM GENERATION CAPACITY:</b> a) Rated : 160.0 Ton/Hr b) Running : -- <b>Load:</b> a) Rated : -- b) Running : -- <b>E : Pollution control device</b> : ESP			
2 a) Material of construction of the Stack : R.C.C.				
b) Material of construction of the Duct : M.S.				
3 a) Shape of the stack : Circular				
b) Shape of the duct : Rectangular				
4 Height of the stack :				
a) From Ground Level (M) : 180				
b) From Roof Level (M) : --				
5 Dimension of the duct :				
a) Top (M) : --				
b) Bottom (M) : --				
c) Sampling Point (M) : 1.5 X 1.3				
6 Height of the Sampling Port :				
a) From Ground Level (M) : --				
b) From Lower Disturbing Zone (M) : --				
7 Whether Stack is provided with permanent Platform/Ladder : Yes				
<b>B : Result of Sampling</b>				
<b>Sl. No.</b>	<b>Parameters tested</b>	<b>Unit</b>	<b>Method of Test (Reference)</b>	<b>Result</b>
1	TEMPERATURE OF EMISSION	deg C	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 170
2	BAROMETRIC PRESSURE	mmHg	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 757
3	VELOCITY OF GAS FLOW	M/Sec	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 21.83
4	QUANTITY OF GAS FLOW	Nm <sup>3</sup> /Hr.	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 102680
5	CONCENTRATION OF PARTICULATE MATTER	mg/Nm <sup>3</sup>	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 40
6	PARTICULATE MATTER NORMALISED TO 12% CO <sub>2</sub>	mg/Nm <sup>3</sup>	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 44.5
7	CONCENTRATION OF SULPHUR DIOXIDE	mg/Nm <sup>3</sup>	IS 11255 (Part 2): 1985 (RA 2014)	: 61
8	CONCENTRATION OF NITROGEN DIOXIDE	mg/Nm <sup>3</sup>	IS 11255 (Part 7): 2005 (RA 2017)	: 72
9	CONCENTRATION OF OXYGEN	% v/v	APHA ( Air Analysis) (3 <sup>rd</sup> Edn.) Method -134	: 9.2
10	CONCENTRATION OF CARBON DIOXIDE	% v/v	APHA ( Air Analysis) (3 <sup>rd</sup> Edn.) Method -134	: 10.8
11	CONCENTRATION OF CARBON MONOXIDE	% v/v	APHA ( Air Analysis) (3 <sup>rd</sup> Edn.) Method -134	: <0.2

The results relate only to the parameter

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Quality Manager  
Authorized Signatory  
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### TEST REPORT STACK GAS

<b>Customer Name</b> : M/s. Bokaro Power Supply Company (P) Ltd., <b>Address</b> : Bokaro Steel City, Bokaro, Jharkhand  <b>Type of Sample</b> : Stack Air <b>Sampling Location</b> : Boiler Unit # 6	<b>Report No.</b> : G/22(04)/25 <b>Report Date</b> : 29-04-2022 <b>Date of Sampling</b> : 21-04-2022 <b>Time of Sampling</b> : 12:20 P.M. <b>Sample Received Date</b> : 24-04-2022 <b>Sample Id No.</b> : GS/22(04)/25 <b>Test Start Date</b> : 24-04-2022 <b>Test End Date</b> : 29-04-2022
<b>A : GENERAL INFORMATION ABOUT STACK :</b> 1 Stack connected to : Boiler Unit # 6 2 a) Material of construction of the Stack : R.C.C. b) Material of construction of the Duct : M.S. 3 a) Shape of the stack : Circular b) Shape of the duct : Rectangular 4 Height of the stack : a) From Ground Level (M) : 180 b) From Roof Level (M) : -- 5 Dimension of the duct : a) Top (M) : -- b) Bottom (M) : -- c) Sampling Point (M) : 3.6 X 1.8 6 Height of the Sampling Port : a) From Ground Level (M) : -- b) From Lower Disturbing Zone (M) : -- 7 Whether Stack is provided with permanent Platform/Ladder : Yes	<b>C : ANALYSIS/CHARACTERISTICS OF FUEL :</b> 1 Emission due to : Burning of Fuel 2 Fuel used : Coal 3 Fuel consumption : 49 Ton/Hr 4 Calorific value (k-cal/kg) : 3500 5 Sulphur content (% by wt) : 0.65 6 Ash content (% by wt) : 35 7 Air flow : -- <b>D : STEAM GENERATION CAPACITY:</b> a) Rated : 260 Ton/Hr b) Running : -- <b>Load:</b> a) Rated : -- b) Running : -- <b>E : Pollution control device</b> : ESP

**B : Result of Sampling**

Sl. No.	Parameters tested	Unit	Method of Test (Reference)	Result
1	TEMPERATURE OF EMISSION	deg C	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 124
2	BAROMETRIC PRESSURE	mmHg	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 757
3	VELOCITY OF GAS FLOW	M/Sec	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 16.76
4	QUANTITY OF GAS FLOW	Nm <sup>3</sup> /Hr.	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 283551.07
5	CONCENTRATION OF PARTICULATE MATTER	mg/Nm <sup>3</sup>	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 61
6	PARTICULATE MATTER NORMALISED TO 12% CO <sub>2</sub>	mg/Nm <sup>3</sup>	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 67.8
7	CONCENTRATION OF SULPHUR DIOXIDE	mg/Nm <sup>3</sup>	IS 11255 (Part 2): 1985 (RA 2014)	: 336
8	CONCENTRATION OF NITROGEN DIOXIDE	mg/Nm <sup>3</sup>	IS 11255 (Part 7): 2005 (RA 2017)	: 351
9	CONCENTRATION OF OXYGEN	% v/v	APHA ( Air Analysis) (3 <sup>rd</sup> Edn.) Method -134	: 9.2
10	CONCENTRATION OF CARBON DIOXIDE	% v/v	APHA ( Air Analysis) (3 <sup>rd</sup> Edn.) Method -134	: 10.8
11	CONCENTRATION OF CARBON MONOXIDE	% v/v	APHA ( Air Analysis) (3 <sup>rd</sup> Edn.) Method -134	: <0.2

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### TEST REPORT STACK GAS

<b>Customer Name</b> : M/s. Bokaro Power Supply Company (P) Ltd., <b>Address</b> : Bokaro Steel City, Bokaro, Jharkhand  <b>Type of Sample</b> : Stack Air <b>Sampling Location</b> : Boiler Unit # 5	<b>Report No.</b> : G/22(04)/24 <b>Report Date</b> : 29-04-2022 <b>Date of Sampling</b> : 21-04-2022 <b>Time of Sampling</b> : 10:30 A.M. <b>Sample Received Date</b> : 24-04-2022 <b>Sample Id No.</b> : GS/22(04)/24 <b>Test Start Date</b> : 24-04-2022 <b>Test End Date</b> : 29-04-2022			
<b>A : GENERAL INFORMATION ABOUT STACK :</b> 1 Stack connected to : Boiler Unit # 5 2 a) Material of construction of the Stack : R.C.C. b) Material of construction of the Duct : M.S. 3 a) Shape of the stack : Circular b) Shape of the duct : Rectangular 4 Height of the stack : a) From Ground Level (M) : 180 b) From Roof Level (M) : -- 5 Dimension of the duct : a) Top (M) : -- b) Bottom (M) : -- c) Sampling Point (M) : 1.5 X 1.3 6 Height of the Sampling Port : a) From Ground Level (M) : -- b) From Lower Disturbing Zone (M) : -- 7 Whether Stack is provided with permanent Platform/Ladder : Yes	<b>C : ANALYSIS/CHARACTERISTICS OF FUEL :</b> 1 Emission due to : Burning of Fuel 2 Fuel used : Coal+ B.F.Gas +CO.Gas 3 Fuel consumption : Coal:10 (TPH), B.F.Gas: 84500 (M <sup>3</sup> /Hr), CO Gas : 4600 (M <sup>3</sup> /Hr) 4 Calorific value (k-cal/kg) : -- 5 Sulphur content (% by wt) : -- 6 Ash content (% by wt) : -- 7 Air flow : -- <b>D : STEAM GENERATION CAPACITY:</b> a) Rated : 135.0 Ton/Hr b) Running : -- Load: a) Rated : -- b) Running : -- <b>E : Pollution control device</b> : ESP			
<b>B : Result of Sampling</b>				
<b>Sl.</b>	<b>Parameters tested</b>	<b>Unit</b>	<b>Method of Test (Reference)</b>	<b>Result</b>
1	TEMPERATURE OF EMISSION	deg C	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 150
2	BAROMETRIC PRESSURE	mmHg	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 757
3	VELOCITY OF GAS FLOW	M/Sec	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 21.84
4	QUANTITY OF GAS FLOW	Nm <sup>3</sup> /Hr.	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 100359.3
5	CONCENTRATION OF PARTICULATE MATTER	mg/Nm <sup>3</sup>	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 52
6	PARTICULATE MATTER NORMALISED TO 12% CO <sub>2</sub>	mg/Nm <sup>3</sup>	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 58.8
7	CONCENTRATION OF SULPHUR DIOXIDE	mg/Nm <sup>3</sup>	IS 11255 (Part 2): 1985 (RA 2014)	: 52
8	CONCENTRATION OF NITROGEN DIOXIDE	mg/Nm <sup>3</sup>	IS 11255 (Part 7): 2005 (RA 2017)	: 60
9	CONCENTRATION OF OXYGEN	% v/v	APHA ( Air Analysis) (3 <sup>rd</sup> Edn.) Method -134	: 9.4
10	CONCENTRATION OF CARBON DIOXIDE	% v/v	APHA ( Air Analysis) (3 <sup>rd</sup> Edn.) Method -134	: 10.6
11	CONCENTRATION OF CARBON MONOXIDE	% v/v	APHA ( Air Analysis) (3 <sup>rd</sup> Edn.) Method -134	: <0.2

The results relate only to the parameter

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## TEST REPORT STACK GAS

<b>Customer Name</b> : M/s. Bokaro Power Supply Company (P) Ltd.,	<b>Report No.</b> : G/22(04)/27			
<b>Address</b> : Bokaro Steel City, Bokaro, Jharkhand	<b>Report Date</b> : 29-04-2022			
	<b>Date of Sampling</b> : 22-04-2022			
	<b>Time of Sampling</b> : 10:10 P.M.			
	<b>Sample Received Date</b> : 24-04-2022			
	<b>Sample Id No.</b> : GS/22(04)/27			
	<b>Test Start Date</b> : 24-04-2022			
	<b>Test End Date</b> : 29-04-2022			
<b>Type of Sample</b> : Stack Air				
<b>Sampling Location</b> : Boiler Unit # 8				
<b>A : GENERAL INFORMATION ABOUT STACK :</b>	<b>C : ANALYSIS/CHARACTERISTICS OF FUEL :</b>			
1 Stack connected to : Boiler Unit # 8	1 Emission due to : Burning of Fuel			
2 a) Material of construction of the Stack : R.C.C.	2 Fuel used : Coal			
b) Material of construction of the Duct : M.S.	3 Fuel consumption : 41 Ton/Hr			
3 a) Shape of the stack : Circular	4 Calorific value (k-cal/kg) : 3500			
b) Shape of the duct : Rectangular	5 Sulphur content (% by wt) : 0.65			
4 Height of the stack :	6 Ash content (% by wt) : 35			
a) From Ground Level (M) : 180	7 Air flow : --			
b) From Roof Level (M) : --	<b>D : STEAM GENERATION CAPACITY:</b>			
5 Dimension of the duct :	a) Rated : 228 Ton/Hr			
a) Top (M) : --	b) Running : --			
b) Bottom (M) : --	<b>Load:</b>			
c) Sampling Point (M) : 3.6 X 1.8	a) Rated : --			
6 Height of the Sampling Port :	b) Running : --			
a) From Ground Level (M) : --	<b>E : Pollution control device</b> : ESP			
b) From Lower Disturbing Zone (M) : --				
7 Whether Stack is provided with permanent Platform/Ladder : Yes				
<b>B : Result of Sampling</b>				
<b>Sl. No.</b>	<b>Parameters tested</b>	<b>Unit</b>	<b>Method of Test (Reference)</b>	<b>Result</b>
1	TEMPERATURE OF EMISSION	deg C	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 122
2	BAROMETRIC PRESSURE	mmHg	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 757
3	VELOCITY OF GAS FLOW	M/Sec	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 16.9
4	QUANTITY OF GAS FLOW	Nm <sup>3</sup> /Hr.	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 287367.3
5	CONCENTRATION OF PARTICULATE MATTER	mg/Nm <sup>3</sup>	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 69
6	PARTICULATE MATTER NORMALISED TO 12% CO <sub>2</sub>	mg/Nm <sup>3</sup>	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	: 73.9
7	CONCENTRATION OF SULPHUR DIOXIDE	mg/Nm <sup>3</sup>	IS 11255 (Part 2): 1985 (RA 2014)	: 354
8	CONCENTRATION OF NITROGEN DIOXIDE	mg/Nm <sup>3</sup>	IS 11255 (Part 7): 2005 (RA 2017)	: 361
9	CONCENTRATION OF OXYGEN	% v/v	APHA ( Air Analysis) (3 <sup>rd</sup> Edn.) Method -134	: 9.8
10	CONCENTRATION OF CARBON DIOXIDE	% v/v	APHA ( Air Analysis) (3 <sup>rd</sup> Edn.) Method -134	: 11.2
11	CONCENTRATION OF CARBON MONOXIDE	% v/v	APHA ( Air Analysis) (3 <sup>rd</sup> Edn.) Method -134	: <0.2

The results relate only to the parameter

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TEST REPORT  
STACK GAS

Customer Name : M/s. Bokaro Power Supply Company (P) Ltd.,	Report No. : G/22(04)/26
Address : Bokaro Steel City, Bokaro, Jharkhand	Report Date : 29-04-2022
	Date of Sampling : 21-04-2022
	Time of Sampling : 02:10 P.M.
	Sample Received Date : 24-04-2022
	Sample Id No. : GS/22(04)/26
	Test Start Date : 24-04-2022
	Test End Date : 29-04-2022
Type of Sample : Stack Air	
Sampling Location : Boiler Unit # 7	
<b>A: GENERAL INFORMATION ABOUT STACK :</b>	<b>C: ANALYSIS/CHARACTERISTICS OF FUEL :</b>
1 Stack connected to : Boiler Unit # 7	1 Emission due to : Burning of Fuel
2 a) Material of construction of the Stack : R.C.C.	2 Fuel used : Coal
b) Material of construction of the Duct : M.S.	3 Fuel consumption : 40 Ton/Hr
3 a) Shape of the stack : Circular	4 Calorific value (k-cal/kg) : 3500
b) Shape of the duct : Rectangular	5 Sulphur content (% by wt) : 0.65
4 Height of the stack :	6 Ash content (% by wt) : 35
a) From Ground Level (M) : 180	7 Air flow : --
b) From Roof Level (M) : --	<b>D: STEAM GENERATION CAPACITY:</b>
5 Dimension of the duct :	a) Rated : 260 Ton/Hr
a) Top (M) : --	b) Running : --
b) Bottom (M) : --	<b>Load:</b>
c) Sampling Point (M) : 3.6 X 1.8	a) Rated : --
6 Height of the Sampling Port :	b) Running : --
a) From Ground Level (M) : --	<b>E: Pollution control device : ESP</b>
b) From Lower Disturbing Zone (M) : --	
7 Whether Stack is provided with permanent Platform/Ladder : Yes	

B: Result of Sampling			
Sl. No.	Parameters tested	Unit	Method of Test (Reference) Result
1	TEMPERATURE OF EMISSION	deg C	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008 : 121
2	BAROMETRIC PRESSURE	mmHg	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008 : 757
3	VELOCITY OF GAS FLOW	M/Sec	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008 : 16.84
4	QUANTITY OF GAS FLOW	Nm <sup>3</sup> /Hr.	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008 : 284486.5
5	CONCENTRATION OF PARTICULATE MATTER	mg/Nm <sup>3</sup>	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008 : 66
6	PARTICULATE MATTER NORMALISED TO 12% CO <sub>2</sub>	mg/Nm <sup>3</sup>	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008 : 72
7	CONCENTRATION OF SULPHUR DIOXIDE	mg/Nm <sup>3</sup>	IS 11255 (Part 2): 1985 (RA 2014) : 331
8	CONCENTRATION OF NITROGEN DIOXIDE	mg/Nm <sup>3</sup>	IS 11255 (Part 7): 2005 (RA 2017) : 346
9	CONCENTRATION OF OXYGEN	% v/v	APHA ( Air Analysis) (3 <sup>rd</sup> Edn.) Method -134 : 9
10	CONCENTRATION OF CARBON DIOXIDE	% v/v	APHA ( Air Analysis) (3 <sup>rd</sup> Edn.) Method -134 : 11
11	CONCENTRATION OF CARBON MONOXIDE	% v/v	APHA ( Air Analysis) (3 <sup>rd</sup> Edn.) Method -134 : <0.2

The results relate only to the parameter

.....end of report .....



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TEST REPORT  
STACK GAS

Customer Name : M/s. Bokaro Power Supply Company (P) Ltd.,	Report No. : G/22(04)/28
Address : Bokaro Steel City, Bokaro, Jharkhand	Report Date : 29-04-2022
	Date of Sampling : 23-04-2022
	Time of Sampling : 10:45 A.M.
	Sample Received Date : 24-04-2022
	Sample Id No. : GS/22(04)/28
Type of Sample : Stack Air	Test Start Date : 24-04-2022
Sampling Location : D.G.Set ( 500 KVA)	Test End Date : 29-04-2022
<b>A: GENERAL INFORMATION ABOUT STACK :</b>	<b>C: ANALYSIS/CHARACTERISTICS OF FUEL :</b>
1 Stack connected to : D.G.Set(500KVA)	1 Emission due to : Combustion of Fuel
2 a) Material of construction of the Stack : M.S.	2 Fuel used : H.S.D
b) Material of construction of the Duct : -	3 Fuel consumption : 20 Lit/Hr.(Approx)
3 a) Shape of the stack : Circular	4 Calorific value (k-cal/kg) : -
b) Shape of the duct : -	5 Sulphur content (% by) : -
4 Height of the stack :	6 Ash content (% by wt) : -
a) From Ground Level (M) : -	7 Air flow : -
b) From Roof Level (M) : -	<b>D: STEAM GENERATION CAPACITY:</b>
5 Dimension of the duct :	a) Rated : -
a) Top (M) : -	b) Running : -
b) Bottom (M) : -	<b>Load:</b>
c) Sampling Point (M) : 0.076	a) Rated : -
6 Height of the Sampling Port :	b) Running : -
a) From Ground Level (M) : 4.5	<b>E: Pollution control device : NIL</b>
b) From Lower Disturbing Zone (M) : -	
7 Whether Stack is provided with permanent Platform: Used from top of the roof, Ladder : Temporary	

B: Result of Sampling		Unit	Method of Test (Reference)	Result
Sl.	Parameters tested			
1	TEMPERATURE OF EMISSION	deg C	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	209
2	BAROMETRIC PRESSURE	mmHg	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	757
3	VELOCITY OF GAS FLOW	M/Sec	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	16.34
4	QUANTITY OF GAS FLOW	Nm <sup>3</sup> /Hr.	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	211.0
5	CONCENTRATION OF PARTICULATE MATTER	mg/Nm <sup>3</sup>	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	126
6	PARTICULATE MATTER NORMALISED TO 12% CO <sub>2</sub>	mg/Nm <sup>3</sup>	IS:11255 (Part 1):1985 RA 2014 & (Part 3) 2008	-
7	CONCENTRATION OF SULPHUR DIOXIDE	mg/Nm <sup>3</sup>	IS 11255 (Part 2): 1985 (RA 2014)	123
8	CONCENTRATION OF NITROGEN DIOXIDE	mg/Nm <sup>3</sup>	IS 11255 (Part 7): 2005 (RA 2017)	122
9	CONCENTRATION OF OXYGEN	% v/v	APHA ( Air Analysis) (3 <sup>rd</sup> Edition) Method -134	14.6
10	CONCENTRATION OF CARBON DIOXIDE	% v/v	APHA ( Air Analysis) (3 <sup>rd</sup> Edition) Method -134	5.4
11	CONCENTRATION OF CARBON MONOXIDE	% v/v	APHA ( Air Analysis) (3 <sup>rd</sup> Edition) Method -134	<0.2

The results relate only to the parameter  
Sampling done from top of the stack

.....end of report .....



*Thakurbaran*

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FORMAT NO.: PPC/FM/68 ISSUE NO.: 03 ISSUE Dt.: 01/01/2017 (Rev No.:02 Rev. Dt.: 28/05/2018)

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## TEST REPORT

### AMBIENT AIR

Customer Name	: M/s. Bokaro Power Supply Company (P) Ltd.,	Report No.	: G/22(04)/29			
Address	: Bokaro Steel City, Bokaro, Jharkhand	Report Date	: 29-04-2022			
		Sampling Date	: 20-21/04/2022			
		Sample Received Date	: 24-04-2022			
Type of Sample	: Ambient Air	Sample Id No.	: GA/22(04)/29			
Sampling Location	: Near ESP Control Room	Test Start Date	: 24-04-2022			
		Test End Date	: 29-04-2022			
: Environmental Condition : Clear						
Average Temperature (°C) : 35		Average Relative Humidity (%) : 79				
Barometric Pressure (mm Hg) : 757						
Sl. No.	Parameters	Unit	Standard	Result	Standard Ref. Methods	Time Weighted Average
1	Particulate Matter <sub>10</sub> (PM <sub>10</sub> )	(µg/m <sup>3</sup> )	100	66.2	IS:5182 (Part -23):2006 (RA 2017)	24 Hours
2	Particulate Matter <sub>2.5</sub> (PM <sub>2.5</sub> )	(µg/m <sup>3</sup> )	60	45.5	In house method SOP No. SOP/02/02, Issue No. 02 Dated. 02/04/2015 (prepared based on CPCB Guidelines)	24 Hours
3	Sulphur Di-Oxides (SO <sub>2</sub> )	(µg/m <sup>3</sup> )	80	22.0	IS:5182 (Part -2):2001 (RA 2017)	24 Hours
4	Nitrogen Di-Oxides (NO <sub>2</sub> )	(µg/m <sup>3</sup> )	80	43.0	IS:5182 (Part - 6):2006 (RA 2017)	24 Hours

The results relate only to the parameters tested

....end of report...



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## TEST REPORT

### AMBIENT AIR

Customer Name	: M/s. Bokaro Power Supply Company (P) Ltd.,	Report No.	: G/22(04)/31			
Address	: Bokaro Steel City, Bokaro, Jharkhand	Report Date	: 29-04-2022			
Type of Sample	: Ambient Air	Sampling Date	: 21-22/04/2022			
Sampling Location	: Near CHP Area	Sample Received Date	: 24-04-2022			
		Sample Id No.	: GA/22(04)/31			
		Test Start Date	: 24-04-2022			
		Test End Date	: 29-04-2022			
: Environmental Condition : Clear						
Average Temperature (°C) : 36		Average Relative Humidity (%) : 80				
		Barometric Pressure (mm Hg) : 757				
Sl. No.	Parameters	Unit	Standard	Result	Standard Ref. Methods	Time Weighted Average
1	Particulate Matter <sub>10</sub> (PM <sub>10</sub> )	(µg/m <sup>3</sup> )	100	73.0	IS:5182 (Part -23):2006 (RA 2017)	24 Hours
2	Particulate Matter <sub>2.5</sub> (PM <sub>2.5</sub> )	(µg/m <sup>3</sup> )	60	51.0	In house method SOP No. SOP/02/02, Issue No. 02 Dated. 02/04/2015 (prepared based on CPCB Guidelines)	24 Hours
3	Sulphur Di-Oxides (SO <sub>2</sub> )	(µg/m <sup>3</sup> )	80	22.0	IS:5182 (Part -2):2001 (RA 2017)	24 Hours
4	Nitrogen Di-Oxides (NO <sub>2</sub> )	(µg/m <sup>3</sup> )	80	45.0	IS:5182 (Part - 6):2006 (RA 2017)	24 Hours

The results relate only to the parameters tested

....end of report...



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## TEST REPORT

### AMBIENT AIR

<b>Customer Name</b> : M/s. Bokaro Power Supply Company (P) Ltd.,	<b>Report No.</b> : G/22(04)/30
<b>Address</b> : Bokaro Steel City, Bokaro, Jharkhand	<b>Report Date</b> : 29-04-2022
	<b>Sampling Date</b> : 20-21/04/2022
	<b>Sample Received Date</b> : 24-04-2022
<b>Type of Sample</b> : Ambient Air	<b>Sample Id No.</b> : GA/22(04)/30
<b>Sampling Location</b> : Near WCTP Area	<b>Test Start Date</b> : 24-04-2022
	<b>Test End Date</b> : 29-04-2022

: Environmental Condition : Clear

Average Temperature (°C) : 35

Average Relative Humidity (%) : 79

Barometric Pressure (mm Hg) : 757

Sl. No.	Parameters	Unit	Standard	Result	Standard Ref. Methods	Time Weighted Average
1	Particulate Matter <sub>10</sub> (PM <sub>10</sub> )	(µg/m <sup>3</sup> )	100	60.3	IS:5182 (Part -23):2006 (RA 2017)	24 Hours
2	Particulate Matter <sub>2.5</sub> (PM <sub>2.5</sub> )	(µg/m <sup>3</sup> )	60	44.0	In house method SOP No. SOP/02/02, Issue No. 02 Dated. 02/04/2015 (prepared based on CPCB Guidelines)	24 Hours
3	Sulphur Di-Oxides (SO <sub>2</sub> )	(µg/m <sup>3</sup> )	80	20.8	IS:5182 (Part -2):2001 (RA 2017)	24 Hours
4	Nitrogen Di-Oxides (NO <sub>2</sub> )	(µg/m <sup>3</sup> )	80	34.9	IS:5182 (Part - 6):2006 (RA 2017)	24 Hours

The results relate only to the parameters tested

....end of report...



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## TEST REPORT FOR NOISE MONITORING

<b>Name of the Customer</b>		: M/s. Bokaro Power Supply Company (P) Ltd.,			
<b>Address</b>		: Bokaro Steel City, Bokaro, Jharkhand			
<b>Location of Sampling</b>	: Near WCT Plant	<b>Report No.</b>	: G/22(04)/33		
<b>Type of Sample</b>	: Noise	<b>Date of Reporting</b>	: 29-04-2022		
<b>Date of Monitoring</b>	: 20-04-2022	<b>Starting Time</b>	: 02:30 P.M.		
<b>Sample Received Date</b>	: 24-04-2022	<b>Distance from the Machine</b>	: 3.5(m)		
<b>Interval (dt) : 60 min.</b>	<b>Total time : 8 hrs.</b>	<b>Height from Ground Level</b>	: 1.5 (m)		
DAY TIME					
SL. NO.	SOUND LEVEL (Li) (Hourly data)	ft. = dt/T	ft. x 10 <sup>(Li/10)</sup>	SUM OF ft. x 10 <sup>(Li/10)</sup>	RESULT dB(A)
1	77.9	0.125000	7707437.523269	41981538.681648	Leq = 76.23
2	76.1	0.125000	5092253.472551		
3	76.3	0.125000	5332243.985020		
4	74.8	0.125000	3774939.650503		
5	75.9	0.125000	4863064.312429		
6	74.2	0.125000	3287834.989869		
7	76.2	0.125000	5210867.293379		
8	77.3	0.125000	6712897.454628		
results relate only to the parameters tested.					....end of report....
<b>Limit in 90 dB(A) Leq (8 hrs./day Exposure)</b>					



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## TEST REPORT FOR NOISE MONITORING

Name of the Customer		: M/s. Bokaro Power Supply Company (P) Ltd.,			
Address		: Bokaro Steel City, Bokaro, Jharkhand			
Location of Sampling	: Near ESP Control Room	Report No.	: G/22(04)/32		
Type of Sample	: Noise	Date of Reporting	: 29-04-2022		
Date of Monitoring	: 20-04-2022	Starting Time	: 11:05 A.M.		
Sample Received Date	: 24-04.2022	Distance from the Machine	: 3.5(m)		
Interval (dt) : 60 min.	Total time : 8 hrs.	Height from Ground Level	: 1.5 (m)		
DAY TIME					
SL. NO.	SOUND LEVEL (Li) (Hourly data)	ft. = dt/T	ft. x 10 <sup>(Li/10)</sup>	SUM OF ft. x 10 <sup>(Li/10)</sup>	RESULT dB(A)
1	74.1	0.1	3212994.728461	29982452.524543	Leq = 74.77
2	73.9	0.1	3068386.144606		
3	75.6	0.1	4538475.684626		
4	72.8	0.1	2381825.897454		
5	77.5	0.1	7029266.564879		
6	72.4	0.1	2172251.035937		
7	72.3	0.1	2122804.565577		
8	76.4	0.1	5456447.903002		
results relate only to the parameters tested.					....end of report.....
Limit in 90 dB(A) Leq (8 hrs./day Exposure)					



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## TEST REPORT FOR NOISE MONITORING

Name of the Customer	: M/s. Bokaro Power Supply Company (P) Ltd.,				
Address	: Bokaro Steel City, Bokaro, Jharkhand				
Location of Sampling	: Turbine Area	Report No.	: G/22(04)/35		
Type of Sample	: Noise	Date of Reporting	: 29-04-2022		
Date of Monitoring	: 21-04-2022	Starting Time	: 02:40 P.M.		
Sample Received Date	: 24-04-2022	Distance from the Machine	: 3.5(m)		
Interval (dt) : 60 min.	Total time : 8 hrs.	Height from Ground Level	: 1.5 (m)		
<b>DAY TIME</b>					
SL. NO.	SOUND LEVEL (Li) (Hourly data)	ft. = dt/T	ft. x 10 <sup>4</sup> (Li/10)	SUM OF ft. x 10 <sup>4</sup> (Li/10)	RESULT dB(A)
1	94.6	0.125000	360503937.890825	1679139412.764650	Leq = 92.25
2	93.2	0.125000	261162016.356756		
3	90.9	0.125000	153783596.351548		
4	90.6	0.125000	143519202.687110		
5	93.1	0.125000	255217243.083691		
6	89.4	0.125000	108870448.744510		
7	92.6	0.125000	227462607.326248		
8	91.3	0.125000	168620360.323956		
results relate only to the parameters tested.					....end of report.....
Limit in 90 dB(A) Leq (8 hrs./day Exposure)					



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## TEST REPORT FOR NOISE MONITORING

<b>Name of the Customer</b>		: M/s. Bokaro Power Supply Company (P) Ltd.,			
<b>Address</b>		: Bokaro Steel City, Bokaro, Jharkhand			
<b>Location of Sampling</b>	: Near Admn. Building	<b>Report No.</b>	: G/22(04)/34		
<b>Type of Sample</b>	: Noise	<b>Date of Reporting</b>	: 29-04-2022		
<b>Date of Monitoring</b>	: 21-04-2022	<b>Starting Time</b>	: 10:50 A.M.		
<b>Sample Received Date</b>	: 24-04-2022	<b>Distance from the Machine</b>	: 3.5(m)		
<b>Interval (dt) : 60 min.</b>	<b>Total time : 8 hrs.</b>	<b>Height from Ground Level</b>	: 1.5 (m)		
DAY TIME					
SL. NO.	SOUND LEVEL (Li) (Hourly data)	ft. = dt/T	ft. x 10 <sup>(Li/10)</sup>	SUM OF ft. x 10 <sup>(Li/10)</sup>	RESULT dB(A)
1	56.2	0.125000	52108.672934	268727.933012	Leq = 54.29
2	54.8	0.125000	37749.396505		
3	51.7	0.125000	18488.854852		
4	54.5	0.125000	35229.786641		
5	52.8	0.125000	23818.258975		
6	55.6	0.125000	45384.756846		
7	52.8	0.125000	23818.258975		
8	54.1	0.125000	32129.947285		
results relate only to the parameters tested.					....end of report.....
<b>Limit in 90 dB(A) Leq (8 hrs./day Exposure)</b>					



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## TEST REPORT

### Water Sample

Customer Name	: M/s. Bokaro Power Supply Company (P) Ltd.,	Report No.	: W/22(03)/18
Address	: Bokaro Steel City, Bokaro, Jharkhand	Report Date	: 30-03-2022
Type of Sample	: Effluent Water	Sampling Date	: 25-03-2022
Sampling Location	: Water Chemical Treatment Plant	Sample Received Date	: 26-03-2022
		Sample Id No.	: E/18A/2022
		Test Start Date	: 26-03-2022
		Test End Date	: 30-03-2022

SL. No.	Chemical Test Parameter	Unit	Results	Methods of Test (Reference)
1	Temperature (Collection Time)	°C	22.0	APHA (23 <sup>rd</sup> Edition) 2550 B : 2017
2	pH	--	7.73	APHA (23 <sup>rd</sup> Edition) 4500 H+B:2017
3	Total Suspended Solid (as TSS)	mg/l	53.0	APHA (23 <sup>rd</sup> Edition) 2540 D:2017
4	Chemical Oxygen Demand (as COD)	mg/l	44.0	APHA (23 <sup>rd</sup> Edition) 5220 B:2017
5	Bio-Chemical Oxygen Demand (as BOD)	mg/l	18.0	IS 3025 (Part 44): 1993 (RA 2014)
6	Oil & Grease	mg/l	<5.0	APHA (23 <sup>rd</sup> Edition ) 5520 B:2017

The results relate only to the parameters tested.

....end of report...



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