बोकारो पावर सप्लाई कम्पनी (प्रा.) लिमिटेड (सेल 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)



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)

Date: 08.06.2024

No. BPSCL/PP/ENV/06/2009

To The Board Analyst

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

> Sub: CREP- COMPLIANCE REPORT Ref: Your letter no. L-1895 dt. 23.09.10

Dear Sir,

Enclosed please find herewith the compliance report of CREP for the year 2023-24.

Thanking you.

Yours faithfully

(A.K Das) CGM (MM,CED&ENV)

Encl.: As stated.

 Ministry of Environment Forest and Climate Change, Regional Office, Bungalow No. A-2, Shyamli Colony, Ranchi – 834002

2. The Regional Officer, Jharkhand State Pollution Control Board, Housing Colony, HIG - 1, Bartand, Dhanbad - 826001; Jharkhand

3. O/c

From:	To:
Sri. V Agarwal,	The Member Secretary,
Chief General Manager I/C (PP)	Jharkhand State Pollution Control Board,
Bokaro Power Supply Co. (P) Ltd.	T.A. Division Building (Ground Floor),
B. S. City	H.E.C. Dhurwa, Ranchi - 834004

# CORPORATE RESPONSIBILITY FOR ENVIRONMENT PROTECTION (CREP) OF POWER PLANT/BOKARO POWER SUPPLY CO. (P) LTD.

CREP ACTION POINTS	STATUS OF COMPLIANCE
STACK EMISSION	<ul> <li>a) All Boilers in Power Plant are provided with Electrostatic Precipitators (ESPs) to restrict Stack Emission.</li> <li>b) Stack Emission parameters related to all Boilers are maintained within the prescribed limit of 100 PPM for old Boilers and 50 PPM for New Boiler (Unit #9 only).</li> <li>c) Round the clock surveillance, Monitoring &amp; maintenance of ESPs are done to maintain the prescribed norms.</li> <li>d) Installation of online Sox, NOx analyzer is already done in all our boilers. Commissioning for real time data transfer to JSPCB &amp; CPCB is under progress.</li> <li>e) Online stack emission monitoring system has been installed and working successfully. Monitoring is being done by Yokogawa System and parameter is being display in CPCB &amp; JSPCB.</li> </ul>
SOLID WASTE / HAZARDOUS WASTE	<ul> <li>a) Fly ash along with bottom ash is being sent to ash pond and presently used in road construction activities/back filling of low laying areas.</li> <li>b) Silos are in place for boiler 6,7,8 and 9 for collecting dry fly ash.</li> <li>c) 20 KL of used Transformer oil have been auctioned to recycler M/s Shree Balaji Oil industries and another 20 KL of unserviceable Mix of industrial waste oil have been auctioned to recycler M/s Lucky Petroleum in 2023-24 through e-auction by M/s MSTC. Another 20 KL of unserviceable Mix of industrial waste oil is in stock which will be auctioned in due course.</li> <li>d) Metallic Scrap are being sent to BSL for re-use.</li> <li>e) Batteries are being disposed of to recycle through the buyback arrangement while procurement of new batteries.</li> <li>f) Used scrap transformers are e-auctioned through M/s MSTC.</li> <li>g) E-waste is being handed over to BSL for sending the same to recyclers.</li> </ul>



UTILIZATION OF DRY FLY

ASH/POND ASH

#### a) Utilisation of Pond Ash for Road Construction

- We have already utilized approx. 2,00,000 cum of pond ash in NHAI road Construction under Dhanbad division.
- BPSCL has also signed MOU with NHAI, Ramgarh division for utilization of pond ash in their road projects.

## b) <u>Utilisation of Pond Ash for low lying</u> <u>areas/embankment</u>

- A quantity of 1,50,000 cum ash has been filled for construction of hazardous waste pit of BSL.
- Empanelment of vendors has been done for filling up of low lying areas and construction of a road inside BSL plant premises using pond ash.

#### c) DRY ASH COLLECTION SYSTEM

- The dry ash collection system exists and in working condition for CPP Boilers and unit # 9.
- We have been supplying fly ash from silo to M/s.
   Dalmia Cement as per their requirement.
- In last year 540 cum of ash has been lifted by local brick manufacturers from our silos.
- 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 inhouse brick manufacturing.
- Last year 2,59,706 bricks (405.2 MT) have been manufactured in house for internal consumption and for supply to BSL.
- 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.
- Lifting permission has been given toh M/S Orient Exports Pvt. Ltd. for bagging and transportation of Ash by railway wagons. Bagging work is under progress. 43,162.80 MT i.e 18 rakes of Ash

HO1/14

	has been sent through rail mode to Bangladesh.  Detailed Utilization report for Fy 2023-2 attached.
WATER CONSERVATION/WATER POLLUTION	<ul> <li>a) Industrial water consumption is 6700 cum/day, which is recycled and sent back to BSL network.</li> <li>b) Water sent along with ash slurry to ash pond which after after settlement of suspended solids is reused. A water flow diagram is attached.</li> <li>c) On-line Effluent Monitoring System has been installed and working successfully. Real time dath transmission is being done through NEVCO server to JSPCB &amp; CPCB. The parameters being monitored are PH, COD, BOD and TSS.</li> <li>d) Zero liquid discharge system in outfall of BSI commonly used by BPSCL also is installed and no industrial effluent is discharged to outside water body.</li> </ul>
RAIN WATER CONSERVATION/ HARVESTING MANAGEMENT	<ul> <li>a) The existing power plant has a well-designed storm drainage system.</li> <li>b) Storm Water/ Rain water drains are connected to BSI network and discharges the same to cooling pond of Bokaro Steel Plant through Zero liquid discharge.</li> <li>c) The cooling pond also acts as the raw water reservoir d) The water collected in the cooling pond also recharges the ground water table.</li> <li>e) Rain Water Harvesting system for individual buildings has been installed and are functioning (Photo attatched)</li> </ul>
CONSERVATION OF ENVIRONMENT	<ul> <li>a) Trees were planted in and around the plant area during last year.</li> <li>b) 50 kg of grass seed (Estilo Hamata) planted in ash pond area for environment protection. Additionally, samplings of Kadam and bamboo trees are planted to develop the greenery. Regular plantation in and around peripheral areas will be carried out.</li> <li>c) Bio-stabilization of ash dumps with use of Jute geo textile, coconut coir logs, and vetiver grass are being carried out in phased manner to develop green belt. In trial phase an area of 5460 sqm and in 2nd phase 7750 sqm of area has been bio-stabilized along with green belt development.</li> <li>d) Power Plant is committed to maintain an eco friendly environment. We have developed the eco-friendly garden in plant. It is a continuous process and plant is adhering to this principle.</li> </ul>
GREEN PROJECT MISSION	a) BPSCL has installed 100 KW of solar Power on the roof-top of its office buildings for clean energy production.
	Elops.

ζ.	b) BPSCL has also installed <b>02 MW of solar Power project</b> on rooftops of different BSL buildings like Administrative building, Bokaro general hospital etc.
DRY FLY ASH MISSION	<ul> <li>a) A conference for Fly Ash Utilization and disposal has been organized by BPSCL at Bokaro Steel City.</li> <li>b) In consultation with BSL Environment Deptt., we are carrying out different programs for awareness of utilization of dry fly ash. Advertisement by Poster News paper and local TV channels are done.</li> <li>c) 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 manufacturing</li> <li>d) Two nos of Fly Ash Bagging Machine have been commissioned for bagging of fly ash and transportation to end users by railway wagons.</li> <li>e) Dry fly ashes packed in bags are being sent to Darshana, Bangladesh on monthly basis.</li> </ul>
SO <sub>X</sub> & NO <sub>X</sub> NORMS	<ul> <li>a) 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 R V Briggs, 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.</li> <li>b) Bokaro Steel Plant has already installed an online AAQ monitoring and data is being shared for BPSCL also as and when required.</li> <li>c) Monitoring of dust emission, is being done on-line with real time data transfer to JSPCB and CPCB.</li> </ul>
MONITORING STATUS &	Attached as Annexures.
REPORT	





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

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

CIN: U51109WB1931PTC007007



**TEST REPORT** 

Carbon monoxide   IS 11255 : Part 2 : 1985   IS 11255 : Part 2 : 1985   IS 11255 : Part 3 : 1985   IS 11255 : Part 3 : 1985   IS 11255 : Part 3 : 1985   IS 11255 : Part 4 : 1985   IS 11255 : Part 5 : 2005   IS 11255 : Part 7 : 2005   IS 11255 : Part 1 : 1985   IS 100 max.      Carbon monoxide   IS 13270 (By Orsat) : 1992   W v/v   V	No.	AP-FG/23-24/1452	Date: January 19, 2024 Page 1				
Your Ref. No.   SPSCL/MM/22-23/C-003/LTB-010/50133/2398   Sample Description   Stack Gas / Flue Gas   Sample Description   Stack Gas / Flue Gas   Inc.   10.2024 (10:00 A.M. to 10:48 A.M.)   Parameters Tested   Physical : Temp., Velocity, Gas flow, O. Chemical: Stack Connected to   19.01.2024   Physical : Temp., Velocity, Gas flow, O. Chemical: Stack connected to   19.01.2024   Physical : Temp., Velocity, Gas flow, O. Chemical: Stack Connected to   19.01.2024   Physical : Temp., Velocity, Gas flow, O. Chemical: Stack Connected to   19.01.2024   Physical : Temp., Velocity, Gas flow, O. Chemical: Stack Connected to   19.01.2024   Physical : Temp., Velocity, Gas flow, O. Chemical: Stack Connected to   19.01.2024   Physical : Temp., Velocity, Gas flow, O. Chemical: Stack Connected to   19.01.2024   Physical : Temp., Velocity, Gas flow, O. Chemical: Stack Connected to   19.01.2024   Physical : Temp., Velocity, Gas flow, O. Chemical: Stack Connected to   19.01.2024   Physical : Temp., Velocity, Gas flow, O. Chemical: Stack Connected to   19.01.2024   Physical : Temp., Velocity, Gas flow, O. Chemical: Stack Connected to   19.01.2024   Physical : Temp., Velocity, Gas flow, O. Chemical: Stack Connected to   19.01.2024   Physical : Temp., Velocity, Gas flow, O. Chemical: Stack Connected to   19.01.2024   Physical: Temp., Velocity, Gas flow, O. Chemical: Stack Connected to   19.01.2024   Physical: Temp., Velocity, Gas flow, O. Chemical: Stack Connected to   19.01.2024   Physical: Temp., Velocity, Gas flow, O. Chemical: Stack Connected to   19.01.2024   Physical: Temp., Velocity, Gas flow, O. Chemical: Stack Connected to   19.01.2024   Physical: Temp., Velocity, Gas flow, O. Chemical: Stack Connected to   19.01.2024   Physical: Temp., Velocity, Gas flow, O. Chemical: Stack Connected to   19.01.2024   Physical: Temp., Velocity, Gas flow, O. Chemical: Stack Connected to   19.01.2024   Physical: Temp., Velocity, Gas flow, O. Chemical: Stack Connected to   19.01.2024   Physical: Temp., Velocity, Gas flow, O. Chemical: Stack C	Issu	ed to : M/S. BOKA					
Your Ref. No.   BPSCL/MM/22-23/C-003/LTE-010/50133/2398   Sample Description   Stack Gas / Flue Gas   ID No.; RVB/SMK/02 (Cal. Validity: 17.06.2024)   Date & time of sampling   16.01.2024 (10:00 A.M. to 10:48 A.M.)   Sampling Plan & Method   RVB/FM/45 & IS: 11255 (Part-1,2 & 3)   Analysis Completed on   19.01.2024   Physical : Temp., Velocity, Gas flow, O <sub>2</sub> Chemicat : SO <sub>2</sub> , NO <sub>2</sub> , CO, CO <sub>2</sub> & PM	Addr			N. 662			
Sample Description   : Stack Gas / Flue Gas   Dob. RVB/SMK/02 (Cal. Validity: 17.06.2024)   Date & time of sampling   : 16.01.2024 (10:00 A.M. to 10:48 A.M.)   Sampling Plan & Method   : RVB/FM/45 & IS: 11255 (Part-I,2 & 3)   Physical: 1 Temp., velocity, Gas flow, O; Chemical: SO <sub>2</sub> , NO <sub>2</sub> , CO, CO <sub>3</sub> & PM	Your				Equip	ment used:	
Sampling Plan & Method			Flue Gas	ID No.: RV			
Analysis Completed on			10:00 A.M. to 10:48 A.M.)		Param	eters Tested	
A.			& IS: 11255 (Part-1,2 & 3)				
Stack connected to				Chemical:	SO <sub>2</sub> , NO <sub>2</sub> , Co	O, CO <sub>2</sub> & PM	
2. Emission due to : Combustion of Coal, CO Gas & BF Gas 3. Material of construction of stack : M.S. 4. Shape of stack : Rectangular 5. Whether stack is provided with permanent platform & ladder : Yes 6. Boiler capacity : 8. Physical characteristics of stack: 1. Height of the stack from ground level : 180 M 2. Diameter of the stack at sampling point : 1.5 M x 1.3 M 3. No. of Traverse point : 24 Nos. 4. Height of the sampling point from GL : 6. Analysis / Characteristic of stack Gas / Flue Gas: 7. Fuel used : Coal, CO Gas & BF Gas  D. Environmental conditions: 8. Results of Physical Parameters of Flue Gas: 8. Results of Physical Parameters of Flue Gas: 9. Results of Physical Parameters of Flue Gas: 9. Velocity of gas in duct 18 11255 : Part 3 : 2008 15 18 2008 15 18 2008 15 11255 : Part 3 : 2008 15 18 2008 15 11255 : Part 3 : 2008 15 18 2008 15 11255 : Part 3 : 2008 15 18 2008 15 11255 : Part 3 : 2008 15 18 2008 15 11255 : Part 3 : 2008 15 18 2008 15 11255 : Part 3 : 2008 20 9,6  F. Results of gaseous emission :  SI NO Test Parameters			B				
3. Material of construction of stack : M.S. 4. Shape of stack : Rectangular 5. Whether stack is provided with permanent platform & ladder : Yes 6. Boiler capacity :  B. Physical characteristics of stack: 1. Height of the stack at sampling point : 1.5 M x 1.3 M 3. No. of Traverse point : 24 Nos. 4. Height of the stack at sampling point from GL :  C. Analysis / Characteristic of stack Gas / Flue Gas: 1. Fuel used : Coal, CO Gas & BF Gas  D. Environmental conditions: 1. Barometric pressure : 762 mmHg  E. Results of Physical Parameters of Flue Gas: SI No 1. Temperature of emission				DE C			
4. Shape of stack : Rectangular 5. Whether stack is provided with permanent platform & ladder : Yes 6. Boiler capacity :		CONTRACTOR		BF Gas			
5. Whether stack is provided with permanent platform & ladder : Yes 6. Boiler capacity : 8. Physical characteristics of stack : 1. Height of the stack from ground level : 180 M 2. Diameter of the stack at sampling point : 1.5 M x 1.3 M 3. No. of Traverse point : 24 Nos. 4. Height of the sampling point from GL : 6. Analysis / Characteristic of stack Gas / Flue Gas : 1. Fuel used : Coal, CO Gas & BF Gas							
6. Boiler capacity :  B. Physical characteristics of stack :							
B.   Physical characteristics of stack :							
1.   Height of the stack from ground level   : 180 M							
2. Diameter of the stack at sampling point : 1.5 M x 1.3 M . 3. No. of Traverse point : 24 Nos			: 180 M				
3. No. of Traverse point	2.						
C. Analysis / Characteristic of stack Gas / Flue Gas :  1. Fuel used : Coal, CO Gas & BF Gas  2. Fuel consumption :  D. Environmental conditions :  1. Barometric pressure : 762 mmHg  2. Temperature : 22 °C  E. Results of Physical Parameters of Flue Gas :  SI No  Test Parameters  1. Temperature of emission  1. IS 11255 : Part 3 : 2008  2. Velocity of gas in duet  3. Quantity of gas flow  4. Oxygen  1. S 13270 (By Orsat) : 1992  3. Quantity of gaseous emission :  SI No  Test Parameters  Test Method  NM³/hr  95610  4. Oxygen  1. S 13270 (By Orsat) : 1992  %  9.6  F. Results of gaseous emission :  SI No  Test Parameters  Test Method  Unit Results  Norms as per Environment (Protection) Amendment Rules 2015, for TPP  1. (a) Sulphur dioxide  (b) Sulphur dioxide at 6% O₂ correction  (b) Nitrogen dioxide  (c) Nitrogen dioxide at 6% O₂ correction  (b) Nitrogen dioxide  (c) Nitrogen dioxide  1. (a) Carbon monoxide  1. (b) Nitrogen dioxide  1. (c) S 13270 (By Orsat) : 1992  (c) Not Specified  4. Carbon dioxide  1. (a) Particulate Matters  1. (b) Particulate Matters  1. (a) Particulate Matters  1. (b) Particulate Matters at 12% CO₂ correction  1. (c) Particulate Matters at 12% CO₂ correction  1. (d) Particulate Matters at 12% CO₂ correction  1. (e) Particulate Matters at 12% CO₂ correction  1. (f) Particulate Matters at 12% CO₂ correction  1. (g) Particulate Matters at 12% CO₂ correction	3.						
1. Fuel used : Coal, CO Gas & BF Gas   2. Fuel consumption :	4.	Height of the sampling point from GL					
D.   Environmental conditions :	C.	Analysis / Characteristic of stack Gas / F	lue Gas :	[6]		No. of the second secon	
1. Barometric pressure : 762 mmHg				2. Fuel con	sumption :	-	
E.   Results of Physical Parameters of Flue Gas :   SI No   Test   Parameters   Test   Method   Unit   Results	D.						
Test   Parameters   Test   Method   Unit   Results				2. Tempera	ture: 22 °C		
Temperature of emission	E.		as:				
2.       Velocity of gas in duct       IS 11255 : Part 3 : 2008       m/sec       20.34         3.       Quantity of gas flow       IS 11255 : Part 3 : 2008       NM³/hr       95610         4.       Oxygen       IS 13270 (By Orsat) : 1992       %       9.6         F. Results of gaseous emission :         Test Parameters       Test Method       Unit       Results       Norms as per Environment (Protection) Amendment Rules 2015, for TPP         1. (a)       Sulphur dioxide       IS 11255 : Part 2 : 1985       mg/Nm³       237       600 max.         (b)       Sulphur dioxide at 6% O2 correction       IS 11255 : Part 7 : 2005       mg/Nm³       215       600 max.         2. (a)       Nitrogen dioxide at 6% O2 correction       IS 13270 (By Orsat) : 1992       % v/v       <0.2	SI No		Test Method	Unit		Results	
3. Quantity of gas flow Oxygen  F. Results of gaseous emission:    Test Method   Unit   Results   Norms as per Environment (Protection) Amendment Rules 2015, for TPP	1.	Temperature of emission	IS 11255 : Part 3 : 2008	°C		158	
4. Oxygen	2.	Velocity of gas in duct	IS 11255 : Part 3 : 2008	m/sec		20.34	
4.         Oxygen         IS 13270 (By Orsat) : 1992         %         9.6           F.         Results of gaseous emission :         Test Method         Unit         Results         Norms as per Environment (Protection) Amendment Rules 2015, for TPP           1. (a)         Sulphur dioxide         IS 11255 : Part 2 : 1985         mg/Nm³         237         600 max.           (b)         Sulphur dioxide at 6% O₂ correction         IS 11255 : Part 7 : 2005         mg/Nm³         312           (a)         Nitrogen dioxide at 6% O₂ correction         IS 13270 (By Orsat) : 1992         % v/v         <0.2	3.	Quantity of gas flow	IS 11255 : Part 3 : 2008	NM <sup>3</sup> /hr		95610	
Test Parameters  Test Method  Unit  Results  Norms as per Environment (Protection) Amendment Rules 2015, for TPP  IS 11255: Part 2: 1985  Sulphur dioxide at 6% $O_2$ correction  Nitrogen dioxide  Nitrogen dioxide at 6% $O_2$ correction  IS 11255: Part 7: 2005  Nitrogen dioxide at 6% $O_2$ correction  Carbon monoxide  IS 13270 (By Orsat): 1992  Carbon dioxide  IS 13270 (By Orsat): 1992  Carbon dioxide  Not Specified	4.	Oxygen	IS 13270 (By Orsat): 1992			9.6	
1. (a)   Sulphur dioxide   IS 11255 : Part 2 : 1985   mg/Nm³   237   600 max.	F.	Results of gaseous emission :	2				
Rules 2015, for TPP  1. (a) Sulphur dioxide (b) Sulphur dioxide at 6% $O_2$ correction (c) Sulphur dioxide at 6% $O_2$ correction (d) Nitrogen dioxide (e) Nitrogen dioxide (f) Nitrogen dioxide at 6% $O_2$ correction (e) Nitrogen dioxide at 6% $O_2$ correction (f) Nitrogen dioxide at 6% $O_2$ correction (g) Nitrogen dioxide at 6% $O_2$ correction (g) Nitrogen dioxide at 6% $O_2$ correction (h) Nitrogen dioxide at 6% $O_2$ correction (g) Nitrogen dioxide at 6% $O_2$ correction (h) Nitrogen dioxide at 6% $O_2$ correction (g) Nitrogen dioxide at 6% $O_2$ correction (h) Nitrogen dioxide at 6	SI No	Test Parameters	Test Method	Unit	Results	Norms as per Environment	
1. (a) Sulphur dioxide   IS 11255 : Part 2 : 1985   mg/Nm <sup>3</sup>   237   600 max.							
Nitrogen dioxide   IS 11255 : Part 7 : 2005   mg/Nm <sup>3</sup>   215   600 max.	l. (a)	Sulphur dioxide	IS 11255 : Part 2 : 1985	mg/Nm <sup>3</sup>	237		
Nitrogen dioxide   IS 11255 : Part 7 : 2005   mg/Nm <sup>3</sup>   215   600 max.	(b)	Sulphur dioxide at 6% O2 correction		mg/Nm³	312	M	
(b) Nitrogen dioxide at $6\%$ O <sub>2</sub> correction  3. Carbon monoxide  4. Carbon dioxide  Particulate Matters  (b) Particulate Matters at $12\%$ CO <sub>2</sub> correction  Signature Matters at $12\%$ CO <sub>2</sub> correction  Signature Matters  IS $13270$ (By Orsat): $1992$ IS $13270$ (By Orsat): $1992$ Signature Matters  IS $13270$ (By Orsat): $1992$ Signature Matters  Si	2. (a)		IS 11255 : Part 7 : 2005			600 max.	
3. Carbon monoxide       IS 13270 (By Orsat) : 1992       % v/v       <0.2	(b)	Nitrogen dioxide at 6% O <sub>2</sub> correction				SSS IIIWI	
4. Carbon dioxide IS 13270 (By Orsat): 1992 % v/v mg/Nm³ 45 mg/Nm³ 52 100 max.	3.		IS 13270 (By Orsat): 1992			Not Specified	
(a) Particulate Matters (b) Particulate Matters at 12% CO <sub>2</sub> correction  IS 11255 : Part 1 : 1985  mg/Nm³  mg/Nm³  52  100 max.	4.			1			
(b) Particulate Matters at 12% CO <sub>2</sub> correction mg/Nm <sup>3</sup> 52 100 max.	. (a)			553		110t oppointed	
	- 1	SECRETARION OF SECRETARION SEC				100 may	
						100 max.	
G. Pollution control device				mg/Nm <sup>3</sup>	60		
Details of pollution control devices attached with the stack : E.S.P.	100000		with the stack : E.S.P.		Λ.		

1

-: END OF TEST REPORT :-

( Dr. R. KARIM ) Technical Manager

Authorised Signatory

For R.V.BRIGGS & CO. (P) LTD.

\* Results relate only to the parameters tested.

Report Verified by

88

<sup>★</sup> The test report shall not be reproduced, except in full, without written approval of the Company.



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

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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



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No. AP-FG/23-24/1453		Date: January 19, 2024			Page 1 of
Issued to	: M/S. BOKAR	RO POWER SUPPLY COMPAN'	Y (P) LTD.		
Address	: Bokaro Steel	City, Bokaro, Jharkhand, Pin: 82	7001		
Your Ref. No.	: BPSCL/MM/2	22-23/C-003/LTE-010/50133/2398		Equipa	nent used:
Sample Description	: Stack Gas / F	lue Gas	ID No.: RV	B/SMK/02 (C	al. Validity: 17.06.2024)
Date & time of sampling		1:00 A.M. to 11:48 A.M.)			eters Tested
Sampling Plan & Method		k IS: 11255 (Part-1,2 & 3)			ocity, Gas flow, O2
Analysis Completed on	: 19.01.2024		Chemical:	$SO_2$ , $NO_2$ , $CO_2$	O, CO <sub>2</sub> & PM
A. General information abo	ut stack :	B. II III II III II II II II III IIII III III III III III III III III IIII III III III III III III III III III			
Stack connected to		: Boiler Unit # 3	DE C		
<ol> <li>Emission due to</li> <li>Material of construction o</li> </ol>	Fataals	: Combustion of Coal, CO Gas & : M.S.	Br Gas		
4. Shape of stack	1 Stack	: Rectangular			
<ol> <li>Shape of stack</li> <li>Whether stack is provided</li> </ol>	with permanent n				
6. Boiler capacity	with permanent p	:			
B. Physical characteristics	of stack :				
1. Height of the stack from g		: 180 M			
2. Diameter of the stack at sa		: 1.5 M x 1.3 M			
3. No. of Traverse point		: 24 Nos.			
4. Height of the sampling poi		:			
C. Analysis / Characteristic		ie Gas :			
1. Fuel used : Coal, CO Ga			2. Fuel con:	sumption:	-
D. Environmental conditions					
1. Barometric pressure: 762			2. Tempera	ture: 22 °C	
E. Results of Physical Paran	neters of Flue Ga	s:			
Sl No Test Parameters		Test Method	Unit		Results
1. Temperature of emission		IS 11255 : Part 3 : 2008	°C		155
2. Velocity of gas in duct		IS 11255: Part 3: 2008	m/sec		20.42
3. Quantity of gas flow		IS 11255 : Part 3 : 2008	NM <sup>3</sup> /hr		96639
4. Oxygen		IS 13270 (By Orsat): 1992	%		9.2
F. Results of gaseous emiss	ion :			0	
SI No Test Parameters		Test Method	Unit	Results	Norms as per Environmen (Protection) Amendment Rules 2015, for TPP
1. (a) Sulphur dioxide		IS 11255 : Part 2 : 1985	mg/Nm <sup>3</sup>	258	600 max.
(b) Sulphur dioxide at 6% O <sub>2</sub> o	correction		mg/Nm <sup>3</sup>	329	200-200 PMD VALUE
2. (a) Nitrogen dioxide		IS 11255 : Part 7 : 2005	mg/Nm³	235	600 max.
(b) Nitrogen dioxide at 6% O <sub>2</sub>	correction		mg/Nm <sup>3</sup>	299	5-0000000 AMERICANO
3. Carbon monoxide		IS 13270 (By Orsat): 1992	% v/v	< 0.2	Not Specified
4. Carbon dioxide		IS 13270 (By Orsat): 1992	% v/v	10.8	Not Specified
. (a) Particulate Matters		IS 11255 : Part 1 : 1985	mg/Nm <sup>3</sup>	38	110t opecified
X	CO correction	15 11255 . Patt 1 . 1705	1 - 1		100
(b) Particulate Matters at 12%			mg/Nm <sup>3</sup>	42	100 max.
(c) Particulate Matters at 6% ( G. Pollution control device	O <sub>2</sub> correction		mg/Nm <sup>3</sup>	48	

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BB

-: END OF TEST REPORT :-

( Dr. R. KARIM )

<u>Technical Manager</u>

Authorised Signatory

For R.V.BRIGGS & CO. (P) LTD.

Details of pollution control devices attached with the stack: E.S.P.

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

CIN: U51109WB1931PTC007007



TEST REPORT

Date: January 19, 2024			Page 1 of
	(P) I TD		
	7001	Fauint	nent used:
	Equipment used: ID No.: RVB/SMK/02 (Cal. Validity: 17.06.2024)		
	110101		eters Tested
	Physical :		
0 10. 11200 (1 11.0 1,2 00 0)			
		2, 2,	
: Boiler Unit # 4			
: Combustion of Coal, CO Gas & B	BF Gas		
: M.S.			
: Rectangular			
olatform & ladder : Yes			
:			
ue Gas :	0 5 1		
	2. Fuel cons	sumption :	-
		0.	
	2. Tempera	ture: 23 °C	
	1 11-14		DIt-
			Results 162
Market Lands of the State of the Control of the Con			
	175.07.050000000000000000000000000000000		20.77
IS 11255 : Part 3 : 2008	220000000000000000000000000000000000000		103169
IS 13270 (By Orsat): 1992	%		10.6
Test Method	Unit	Results	Norms as per Environment (Protection) Amendment Rules 2015, for TPP
IS 11255 : Part 2 : 1985	mg/Nm <sup>3</sup>	224	600 max.
IS 11255 : Part 7 : 2005			600 max.
15 11255 . 1 tale / . 2005	1000		, ooo max.
IS 12270 (By Owner) - 1002			Not Specified
			Not Specified
(2.02)	AVADO MANGELLA		Not Specified
IS 11255 : Part 1 : 1985			
		42	100 max.
	mg/Nm³	44	
			9
with the stack: E.S.P.		000	
	Date: January 19, 2024  RO POWER SUPPLY COMPANY City, Bokaro, Jharkhand, Pin: 82: 22-23/C-003/LTE-010/50133/2398 lue Gas 2:10 P.M. to 12:58 P.M.) & IS: 11255 (Part-1,2 & 3)  : Boiler Unit # 4 : Combustion of Coal, CO Gas & E : M.S. : Rectangular blatform & ladder : Yes :  : 180 M : 1.5 M x 1.3 M : 24 Nos. : ue Gas:  Test Method  IS 11255: Part 3: 2008 IS 11255: Part 3: 2008 IS 11255: Part 3: 2008 IS 13270 (By Orsat): 1992  Test Method	Date: January 19, 2024	Date: January 19, 2024

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-: END OF TEST REPORT :-

( Dr. R. KARIM )

Technical Manager

Authorised Signatory

For R.V.BRIGGS & CO. (P) LTD.

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CIN: U51109WB1931PTC007007



TEST REPORT

		IEST REPORT			
No. AP-FG/23-24/1455		Date: January 19, 2024			Page 1 of
Issued to		O POWER SUPPLY COMPANY			
Address	: Bokaro Steel	City, Bokaro, Jharkhand, Pin: 827	7001		
Your Ref. No.		2-23/C-003/LTE-010/50133/2398			nent used:
Sample Description : Stack Gas / Flue Gas		ID No.: RVB/SMK/02 (Cal. Validity: 17.06.2024)			
Date & time of sampling	: 15.01.2024 (11	1:00 A.M. to 11:36 A.M.)		<u>Parame</u>	eters Tested
Sampling Plan & Method		: IS: 11255 (Part-1,2 & 3)			ocity, Gas flow, O2
Analysis Completed on	: 19.01.2024	The state of the s	Chemical:	SO <sub>2</sub> , NO <sub>2</sub> , CO	O, CO <sub>2</sub> & PM
A. General information abo					
<ol> <li>Stack connected to</li> </ol>		: Boiler Unit # 6			
2. Emission due to		: Combustion of Coal			
3. Material of construction of		: M.S.			
4. Shape of stack		: Rectangular			
5. Whether stack is provided					
<ul><li>6. Boiler capacity</li><li>B. Physical characteristics</li></ul>		i			
Height of the stack from g		: 180 M			
<ol> <li>Diameter of the stack at s</li> </ol>		: 1.8 M x 2.6 M			
3. No. of Traverse point		: 24 Nos.			
4. Height of the sampling po		:			
C. Analysis / Characteristic		An			
1. Fuel used : Coal			2. Fuel cons	sumption: 39	9 TPH
D. Environmental condition	15:				
1. Barometric pressure: 762			2. Tempera	ture: 21 °C	
E. Results of Physical Para		s:	2. 10		
SI No Test Parameters		Test Method	Unit		Results
Temperature of emission		IS 11255 : Part 3 : 2008	°C		92
Velocity of gas in duct	-	IS 11255 : Part 3 : 2008	m/sec		16.32
		IS 11255 : Part 3 : 2008	NM <sup>3</sup> /hr		217545
3. Quantity of gas flow			NIVI /nr %		8.4
4. Oxygen	laian i	IS 13270 (By Orsat): 1992	70		0.4
F. Results of gaseous emis	ision:	Test Method	I II.it	Dagulta	N. F.
SI No Test Parameters		lest Method	Unit	Results	Norms as per Environment (Protection) Amendment
1 / \ C 1 1	<del></del>	IG 11255 P + 2 1005		512	Rules 2015, for TPP
1. (a) Sulphur dioxide		IS 11255 : Part 2 : 1985	mg/Nm <sup>3</sup>	513	600 max.
(b) Sulphur dioxide at 6% O <sub>2</sub>	correction		mg/Nm <sup>3</sup>	612	
2. (a) Nitrogen dioxide		IS 11255 : Part 7 : 2005	mg/Nm <sup>3</sup>	417	600 max.
(b) Nitrogen dioxide at 6% O	2 correction		mg/Nm <sup>3</sup>	497	
3. Carbon monoxide		IS 13270 (By Orsat): 1992	% v/v	< 0.2	Not Specified
4. Carbon dioxide		IS 13270 (By Orsat): 1992	% v/v	11.6	Not Specified
i. (a) Particulate Matters		IS 11255 : Part 1 : 1985	mg/Nm³	28	
(b) Particulate Matters at 12%	6 CO2 correction		mg/Nm³	29	100 max.
(c) Particulate Matters at 6%			mg/Nm <sup>3</sup>	33	525
G. Pollution control device	2 2 2011 2011 011		mg/14m		
Details of pollution contro	I devices attached v	with the stack : E.S.P.		120	
		-: END OF TEST REPORT :-		A Rho	/
Report Verified	bu	-, LIND OF TEOT KET OKT ,-	/ D	E DEADIN	<i>A</i> )
Kehort verilled	Dy		( D	r. R. KARII	VI )

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Technical Manager
Authorised Signatory
For R.V.BRIGGS & CO. (P) LTD.

<sup>\*</sup> Results relate only to the parameters tested.



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CIN: U51109WB1931PTC007007



**TEST REPORT** 

No. AD EC/22 24/44EC	Detai January 10, 2024			D 1 -1	
No. AP-FG/23-24/1456	Date: January 19, 2024	(D)   TD		Page 1 of	
	RO POWER SUPPLY COMPANY	. ,			
	el City, Bokaro, Jharkhand, Pin: 827	001			
	7 our Ref. No. : BPSCL/MM/22-23/C-003/LTE-010/50133/2398			nent used:	
Sample Description : Stack Gas /		ID No.: RV	ID No.: RVB/SMK/02 (Cal. Validity: 17.06.2024)		
	03:15 P.M. to 04:03 P.M.)			eters Tested	
	& IS: 11255 (Part-1,2 & 3)			ocity, Gas flow, O2	
Analysis Completed on : 19.01.2024		Chemical:	$SO_2$ , $NO_2$ , $CO_3$	O, CO <sub>2</sub> & PM	
A. General information about stack:  1. Stack connected to	: Boiler Unit # 7				
2. Emission due to	: Combustion of Coal				
3. Material of construction of stack	: M.S.				
4. Shape of stack	: Rectangular				
<ul><li>5. Whether stack is provided with permanent</li></ul>					
6. Boiler capacity	:				
B. Physical characteristics of stack :					
1. Height of the stack from ground level	: 180 M				
2. Diameter of the stack at sampling point	: 2.6 M x 1.8 M				
3. No. of Traverse point	: 24 Nos.				
4. Height of the sampling point from GL	:				
C. Analysis / Characteristic of stack Gas / F	lue Gas :				
1. Fuel used : Coal		2. Fuel con	sumption: 5	5 TPH	
D. Environmental conditions :					
1. Barometric pressure: 762 mmHg		2. Tempera	ture: 20 °C		
E. Results of Physical Parameters of Flue G	as:				
SI No Test Parameters	Test Method	Unit		Results	
1. Temperature of emission	IS 11255 : Part 3 : 2008	°C		105	
2. Velocity of gas in duct	IS 11255 : Part 3 : 2008	m/sec		15.71	
3. Quantity of gas flow	IS 11255 : Part 3 : 2008	NM <sup>3</sup> /hr		202142	
4. Oxygen	IS 13270 (By Orsat): 1992	%		10.4	
F. Results of gaseous emission :					
SI No Test Parameters	Test Method	Unit	Results	Norms as per Environmen (Protection) Amendment Rules 2015, for TPP	
1. (a) Sulphur dioxide	IS 11255 : Part 2 : 1985	mg/Nm³	545	600 max.	
(b) Sulphur dioxide at 6% O <sub>2</sub> correction		mg/Nm <sup>3</sup>	773		
2. (a) Nitrogen dioxide	IS 11255 : Part 7 : 2005	mg/Nm <sup>3</sup>	437	450 max.	
(b) Nitrogen dioxide at 6% O <sub>2</sub> correction	15 (1255 . 1 att 7 . 2005	mg/Nm <sup>3</sup>	620	450 IIIax.	
3. Carbon monoxide	IS 12270 (By O) : 1002	2000		No. + C   C	
	IS 13270 (By Orsat) : 1992	% v/v	<0.2	Not Specified	
4. Carbon dioxide	IS 13270 (By Orsat): 1992	% v/v	8.8	Not Specified	
5. (a) Particulate Matters	IS 11255 : Part 1 : 1985	mg/Nm³	31		
(b) Particulate Matters at 12% CO <sub>2</sub> correction		mg/Nm <sup>3</sup>	43	50 max.	
(c) Particulate Matters at 6% O <sub>2</sub> correction		mg/Nm <sup>3</sup>	45		
G. Pollution control device					
Details of pollution control devices attached	with the stack: E.S.P.		1h		

-: END OF TEST REPORT :-

( Dr. R. KARIM )

Technical Manager

Authorised Signatory

For R.V.BRIGGS & CO. (P) LTD.

& Mac-

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CIN: U51109WB1931PTC007007



IEST REPORT				
Date: January 19, 2024	Page 1 of 1			
: M/S. BOKARO POWER SUPPLY COMPANY (P) LTD.				
: Bokaro Steel City, Bokaro, Jharkhand, Pin: 827				
: BPSCL/MM/22-23/C-003/LTE-010/50133/2398	Equipment used:			
: Stack Gas / Flue Gas	ID No.: RVB/SMK/02 (Cal. Validity: 17.06.2024)			
: 17.01.2024 (02:00 P.M. to 02:48 P.M.)	Parameters Tested			
: RVB/FM/45 & IS: 11255 (Part-1,2 & 3)	Physical: Temp., Velocity, Gas flow, O2			
: 19.01.2024	Chemical: SO <sub>2</sub> , NO <sub>2</sub> , CO, CO <sub>2</sub> , Hg & PM			
out stack :	3			
: Boiler Unit # 9, A- Pass				
: Combustion of Coal, LD Gas & BI	F Gas			
	Date: January 19, 2024  : M/S. BOKARO POWER SUPPLY COMPANY : Bokaro Steel City, Bokaro, Jharkhand, Pin: 827  : BPSCL/MM/22-23/C-003/LTE-010/50133/2398 : Stack Gas / Flue Gas : 17.01.2024 (02:00 P.M. to 02:48 P.M.) : RVB/FM/45 & IS: 11255 (Part-1,2 & 3) : 19.01.2024  out stack:  : Boiler Unit # 9, A- Pass			

6.	Boiler	capacity	

Material of construction of stack

Shape of stack

3.

4.

5.

B. Physical characteristics of stack:

Height of the stack from ground level 1. : 180 M Diameter of the stack at sampling point 2. : 4.5 M x 2.25 M

Whether stack is provided with permanent platform & ladder: Yes

3. No. of Traverse point

: 24 Nos.

: M.S.

: Rectangular

Height of the sampling point from GL Analysis / Characteristic of stack Gas / Flue Gas : C.

1.

Fuel used : Coal, LD Gas & BF Gas Environmental conditions: D.

2. Fuel consumption: ---

2. Temperature: 21 °C

Barometric pressure: 762 mmHg

Results of Physical Parameters of Flue Gas

E.	E. Results of Physical Parameters of Flue Gas :						
SI No	Test Parameters	Test Method	Unit	Results			
1.	Temperature of emission	IS 11255 : Part 3 : 2008	°C	124			
2.	Velocity of gas in duct	IS 11255 : Part 3 : 2008	m/sec	15.74			
3.	Quantity of gas flow	IS 11255 : Part 3 : 2008	NM <sup>3</sup> /hr	417484			
4.	Oxygen	IS 13270 (By Orsat): 1992	%	10.6			

Posults of assocue omission :

۲.	Results of gaseous emission :		1		
SI No	Test Parameters	Test Method	Unit	Results	Norms as per Environment (Protection) Amendment Rules 2015, for TPP
1. (a)	Sulphur dioxide	IS 11255 : Part 2 : 1985	mg/Nn	n <sup>3</sup> 552	600 max.
(b)	Sulphur dioxide at 6% O <sub>2</sub> correction		mg/Nn	n <sup>3</sup> 798	
2. (a)	Nitrogen dioxide	IS 11255 : Part 7 : 2005	mg/Nn	n <sup>3</sup> 748	600 max.
(b)	Nitrogen dioxide at 6% O2 correction		mg/Nn	1081	
3.	Carbon monoxide	IS 13270 (By Orsat): 1992	% v/v	< 0.2	Not Specified
4.	Carbon dioxide	IS 13270 (By Orsat): 1992	% v/v	9.0	Not Specified
5. (a)	Particulate Matters	IS 11255 : Part 1 : 1985	mg/Nm	3 29	•
(b)	Particulate Matters at 12% CO <sub>2</sub> correction		mg/Nm	3 39	50 max.
(c)	Particulate Matters at 6% O <sub>2</sub> correction		mg/Nm	2	

Cont. page - 2

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> CIN: U51109WB1931PTC007007 TEST DEDODT



No. A	P-FG/23-24/1457		Date: January 19, 2024			Page 2 of
G.	Results of gaseous emission :					
SI No	Test Parameters		Test Method	Unit	Results	Norms as per CPCB
6.	Mercury as Hg	d i	EPA Method 29: 2017	mg/Nm³	0.0071	0.03
<u></u> Н.	Pollution control device Details of pollution control devices a	4411141-	the starks E.C.D.		8	

-: END OF TEST REPORT :-

Report Verified by

Technical Manager **Authorised Signatory** 

For R.V.BRIGGS & CO. (P) LTD.



Sulphur dioxide

Nitrogen dioxide

Carbon monoxide

Particulate Matters

Carbon dioxide

Sulphur dioxide at 6% O2 correction

Nitrogen dioxide at 6% O2 correction

Particulate Matters at 12% CO2 correction

Particulate Matters at 6% O2 correction

1. (a)

(b)

(b)

2. (a)

3.

4.

5. (a)

(b)

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

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CIN: U51109WB1931PTC007007



TEST REPORT No. AP-FG/23-24/1458 Date: January 19, 2024 Page 1 of 1 Issued to : M/S. BOKARO POWER SUPPLY COMPANY (P) LTD. Address : Bokaro Steel City, Bokaro, Jharkhand, Pin: 827001 Your Ref. No. : BPSCL/MM/22-23/C-003/LTE-010/50133/2398 Equipment used: Sample Description ID No.: RVB/SMK/02 (Cal. Validity: 17.06.2024) : Stack Gas / Flue Gas Date & time of sampling : 17.01.2024 (03:20 P.M. to 04:08 P.M.) Parameters Tested Sampling Plan & Method : RVB/FM/45 & IS: 11255 (Part-1,2 & 3) Physical: Temp., Velocity, Gas flow, O2 Analysis Completed on : 19.01.2024 Chemical: SO2, NO2, CO, CO2, Hg & PM General information about stack : Stack connected to : Boiler Unit # 9. B- Pass Emission due to : Combustion of Coal, LD Gas & BF Gas 3. Material of construction of stack : M.S. Shape of stack 4. : Rectangular Whether stack is provided with permanent platform & ladder: Yes 5. Boiler capacity 6. B. Physical characteristics of stack: Height of the stack from ground level : 180 M 1. Diameter of the stack at sampling point : 4.5 M x 2.25 M 2. No. of Traverse point 3. : 24 Nos. Height of the sampling point from GL 4. C. Analysis / Characteristic of stack Gas / Flue Gas : Fuel used : Coal, LD Gas & BF Gas 2. Fuel consumption: ---1. Environmental conditions: D. 1. Barometric pressure: 762 mmHg 2. Temperature: 20 °C Results of Physical Parameters of Flue Gas: SINo Test Parameters Test Method Unit Results 1. Temperature of emission IS 11255: Part 3: 2008 °C 127 2. Velocity of gas in duct IS 11255 : Part 3 : 2008 m/sec 15.63 3. Quantity of gas flow IS 11255 : Part 3 : 2008 411412 NM<sup>3</sup>/hr 4. Oxygen IS 13270 (By Orsat): 1992 % 10.6 Results of gaseous emission: F. Test Parameters SI No Test Method Unit Results Norms as per Environment

IS 11255: Part 2: 1985

IS 11255: Part 7: 2005

IS 13270 (By Orsat): 1992

IS 13270 (By Orsat): 1992

IS 11255: Part 1: 1985

mg/Nm3

mg/Nm<sup>3</sup>

mg/Nm<sup>3</sup>

mg/Nm<sup>3</sup>

% v/v

% V/V

mg/Nm3

mg/Nm<sup>3</sup>

mg/Nm<sup>3</sup>

577

834

448

647

< 0.2

9.2

33

43

48

Cont. page - 2

(Protection) Amendment Rules 2015, for TPP

600 max.

600 max.

Not Available

Not Available

50 max.



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CIN: U51109WB1931PTC007007

TEST REPORT



D ---- 2 - 6 2

No AP	-FG/23-24/1458	Date: January 19, 2024			Page 2 o
	Results of gaseous emission :	The state of the s			
SI No	Test Parameters	Test Method	Unit	Results	Norms as per CPCB
6.	Mercury as Hg	EPA Method 29: 2017	mg/Nm³	0.0097	0.03
H. <u>F</u>	Pollution control device Details of pollution control devices attach	ed with the stack : E.S.P.			

-: END OF TEST REPORT :-

S. mundul Report Verified by

(Dr. R. KARIM)

Technical Manager

Authorised Signatory

For R.V.BRIGGS & CO. (P) LTD.

BB



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TC-12347

### TEST REPORT

No.	AP-AAQ/23-24/672 Date: January 20, 20					Page 1 of 1	
Issued to : M/S. BOKARO POWER SUPPLY COMPAN							
Address : Bokaro Steel City, Bokaro, Jharkhand, Pin: 8				27001			
You	r WO Ref. No.		/MM/22-23/C-003/LTE-010/50133/2398	ID No. DVD	Equipment /AFDS/PM2.5/04, Cal.		
Sam	ple Description	: Ambier		THE WASHINGTON	/RDS/APM460/01, Cal		
Sam	pling Location		Area (Unit- 9)	ID NO KVB	Environmental c		
			ude- 23.66324°, Longitude- 86.092374°)	Temperatu			
	& Time of sampling		024 (10:30 A.M.)-18.01.2024 (10:30 A.M.)	Temperature: Max: 24.0°C & Min: 10.0°d Barometric Presure: 762 mmHg			
	ipling Plan:	: RVB/F		Barometro	Parameters T		
	ation of Sampling lysis Completed on	: 24Hrs.			PM <sub>2.5</sub> , PM <sub>10</sub> , SO <sub>2</sub>		
	T FINDINGS:-						
SI. No.	Parameters		Test Method	Unit	Results (Time Weighted Avg.)	Norms as NAAQ,2009	
1.	PM <sub>2.5</sub> ( Size ≤ 2.5	iµm )	USEPA 1997a,40 CFR Part 50, Appendix L.	µg/m³	54.2	60 (24 Hourly.)	
2.	PM <sub>10</sub> ( Size ≤ 10	µm )	IS 5182 ( Part - 23 ): 2006	µg/m³	84.5	100 (24 Hourly.)	
3.	Sulphur Dioxide a	s SO <sub>2</sub>	IS 5182 ( Part - 2 ): 2001	µg/m³	5.61	80 (24 Hourly.)	
4.	Nitrogen Dioxide a	is NO <sub>2</sub>	IS 5182 ( Part - 6 ): 2006	µg/m³	29.27	80 (24 Hourly.)	
5. Carbon Monoxide as CO		as CO	IS: 5182 (Part - 10), 1999 Non Dispersive Infra-Red (NDIR)	mg/m <sup>3</sup>	1.23	04 (1 Hourly.)	

-: END OF TEST REPORT :-

spectroscopy

Report Verified by

(Dr. R. KARIM) Technical Manager **Authorised Signatory** For R.V. BRIGGS & CO. (P) LTD.

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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. AP-AAQ/23-24/673	Date: January 20, 20	Page 1 of 1		
Issued to	: M/S. BOKARO POWER SUPPLY COMPANY (P) LTD.			
Address	: Bokaro Steel City, Bokaro, Jharkhand, Pin: 827001			
Your WO Ref. No.	: BPSCL/MM/22-23/C-003/LTE-010/50133/2398	Equipment used:		
Sample Description	: Ambient Air	ID No.: RVB/AFDS/PM2.5/04, Cal. Valid upto: 17.06.24		
Sampling Location	: Near CHP Area	ID No.: RVB/RDS/APM460/BL/10, Cal. Valid upto: 03.11.24		
	(Latitude- 23.685539°, Longitude- 86.095424°)	Environmental conditions		
Date & Time of sampling	: 15.01.2024 (09:30 A.M.)-16.01.2024 (09:30 A.M.)	Temperature : Max: 22.0°C & Min: 10.0°C		
Sampling Plan :	: RVB/FM/45	Barometric Presure : 762 mmHg		
Duration of Sampling	: 24Hrs.	Parameters Tested:		
Analysis Completed on	: 20.01.2024	PM <sub>2.5</sub> , PM <sub>10</sub> , SO <sub>2</sub> , NO <sub>2</sub> , CO		
		-		

TEST FINDINGS:-

SI.		Test Method	Unit	Results	Norms as NAAQ,2009
No.				(Time Weighted Avg.)	
1.	PM <sub>2.5</sub> ( Size ≤ 2.5μm )	USEPA 1997a,40 CFR Part 50, Appendix L.	µg/m³	57.9	60 (24 Hourly.)
2.	PM <sub>10</sub> ( Size ≤ 10μm )	IS 5182 ( Part - 23 ): 2006	µg/m³	95.8	100 (24 Hourly.)
3.	Sulphur Dioxide as SO <sub>2</sub>	IS 5182 ( Part - 2 ): 2001	µg/m³	4.59	80 (24 Hourly.)
4.	Nitrogen Dioxide as NO <sub>2</sub>	IS 5182 ( Part - 6 ): 2006	µg/m³	24.44	80 (24 Hourly.)
5.	Carbon Monoxide as CO	IS: 5182 (Part - 10), 1999 Non Dispersive Infra-Red (NDIR) spectroscopy	mg/m³	1.25	04 (1 Hourly.)

-: END OF TEST REPORT :-

Report Verified by

( Dr. R. KARIM )

Technical Manager

Authorised Signatory

For R.V. BRIGGS & CO. (P) LTD.

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CIN: U51109WB1931PTC007007



#### TEST REPORT

No. AP-AAQ/23-24/674	Date: January 20, 20	Page 1 of 1			
Issued to	: M/S. BOKARO POWER SUPPLY COMPAN	NY (P) LTD.			
Address	: Bokaro Steel City, Bokaro, Jharkhand, Pin: 827001				
Your WO Ref. No.	: BPSCL/MM/22-23/C-003/LTE-010/50133/2398	Equipment used:			
Sample Description	: Ambient Air	ID No.: RVB/AFDS/PM2.5/04, Cal. Valid upto: 04.06.24			
Sampling Location	: Near Welfare Building	ID No.: RVB/RDS/APM460/BL/10, Cal. Valid upto: 03.11			
	(Latitude- 23.6843°, Longitude- 86.0931°)	Environmental conditions			
Date & Time of sampling	: 16.01.2024 (10:00 A.M.)-17.01.2024 (10:00 A.M.)	Temperature : Max: 24.0°C & Min: 12.0°C			
Sampling Plan:	: RVB/FM/45	Barometric Presure: 762 mmHg			
Duration of Sampling	: 24Hrs.	Parameters Tested:			
Analysis Completed on	: 20.01.2024 PM <sub>2.5</sub> , PM <sub>10</sub> , SO <sub>2</sub> , NO <sub>2</sub> , CO				
TEST SIMPLINGS.					

SI. No.		Test Method	Unit	Results (Time Weighted Avg.)	Norms as NAAQ,2009
1.	PM <sub>2.5</sub> ( Size ≤ 2.5µm )	USEPA 1997a,40 CFR Part 50, Appendix L.	µg/m³	51.7	60 (24 Hourly.)
2.	PM <sub>10</sub> ( Size ≤ 10μm )	IS 5182 ( Part - 23 ): 2006	µg/m³	74.4	100 (24 Hourly.)
3.	Sulphur Dioxide as SO <sub>2</sub>	IS 5182 ( Part - 2 ): 2001	µg/m³	4.90	80 (24 Hourly.)
4.	Nitrogen Dioxide as NO <sub>2</sub>	IS 5182 ( Part - 6 ): 2006	µg/m³	27.49	80 (24 Hourly.)
5.	Carbon Monoxide as CO	IS: 5182 (Part - 10), 1999 Non Dispersive Infra-Red (NDIR) spectroscopy	mg/m³	0.92	04 (1 Hourly.)

-: END OF TEST REPORT :-

5. monder Report Verified by

(Dr. R. KARIM) Technical Manager **Authorised Signatory** For R.V. BRIGGS & CO. (P) LTD.

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CIN: U51109WB1931PTC007007



#### TEST REPORT

No. E(D)/23-24/1552

Date: 22 January 2024

Page 1 of 1

Issued to

M/s. BOKARO POWER SUPPLY COMPANY (P) LTD.

Bokaro Steel City, Bokaro, Jharkhand

Your Ref. No.

BPSCL/MM/22-23/C-003/LTE-010/50183/2398 dtd. 16.09.2022

Description of Sample

Effluent

Collection Source

WCTP Outlet

Parameter Tested:

Sample Drawn by us on

17.01.2024.2023 at 4.00 P.M.

pH, TSS, O & G, BOD, COD

Sample Carried out by

Mr. S. Mondal and Mr. B. Manna

Sampling Plan

RVB/FM/44 22.01.2024

Analysis completed on Sample collection Procedure

IS: 3025 (Part -1) - 1987

Mode of Sampling

Environmental condition during sampling: Temperature: 14°C, Transported in Ice box, Cold chain maintained

#### TEST FINDINGS:

SI. No.	Test Parameters	Test Method	Unit	Results	Limit as per Environmental Protection Act, MOE & F for Effluent discharged into Inland surface water
1	pH Value	APHA 23rd edition-4500H+B		7.5	5.5 – 9.0
2	Total Suspended Solids (TSS)	APHA 23rd edition 2540D	mg/l	14	100 (Max.)
3	Oil & Grease (O & G)	APHA 23rd edition 5520B	mg/l	< 2	10 (Max.)
4	Biochemical Oxygen Demand for 3 days at 27°C (BOD)	I.S. 3025 (Part – 44) – 1993	mg/l	5.4	30 (Max.)
5	Chemical Oxygen Demand (COD)	APHA 23rd edition 5220B	mg/l	26	250 (Max.)

Remarks: The sample of Effluent complies with Environmental Protection Act, MOE & F for effluent

discharged into Inland Surface water in respect of above mentioned parameters.

Note: Minimum Detection Limit of TSS .. 10 mg/l., Oil & Grease .. 2 mg/l.

-: END OF TEST REPORT:-

port Verified by

(J. Das)

Technical Manager

Authorised Signatory

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#### **TEST REPORT**

Page 1 of 1		2024	No. AP-SL/23-24/1099 Date: January 19, 2024		No. Al	
		_TD.	Issued to : M/S. BOKARO POWER SUPPLY COMPANY (P) LTD			
	: Bokaro Steel City, Bokaro, Jharkhand, Pin: 827001			ss	Addres	
		. 06.09.2022	50133/2398, dtd	: BPSCL/MM/22-23/C-003/LTE-010/	/.O. No.	Your V
				: Sound Level Monitoring	otion of Sample	Descri
Tested : L <sub>Min</sub> , L <sub>Max</sub> & L <sub>eq</sub>	Parameters T			: Turbine Floor	n	Locatio
: IS 4758 : 1968	Test Method			: 16.01.2024	Monitoring	Date of
	3	10:00 P.M.)	6:00 A.M. to	Day Time ( 06		
Permissible Noise Exposure for Industrial	Noise Level in dR(A)		Noi	Time	Date	SI. No.
Workers as per The Noise Pollution (Regulation And Control) Rules, 2000	L <sub>eq</sub>	L <sub>Max</sub>	L <sub>Min</sub>			
	86.9	87.8	85.8	10:30 A.M 10:35 A.M.		1.
	87.6	89.5	86.1	11:30 A.M 11:35 A.M.		2.
1	86.8	87.5	85.4	12:30 P.M 12:35 P.M.		3.
]	86.0	87.2	84.8	01:30 P.M 01:35 P.M.	16.01.2024	4.
90 dB(A)	86.6	87.5	85.1	02:30 P.M 02:35 P.M.	10.01.2024	5.
1	87.9	89.2	86.3	03:30 P.M 03:35 P.M.		6.
1	86.3	87.5	85.1	04:30 P.M 04:35 P.M.		7.

Note : - Leq - Equivalent sound energy.

05:30 P.M. - 05:35 P.M.

L(Day) Max: 89.5

-: END OF TEST REPORT :-

86.1

88.3

Report Verified by

L(Day) Min: 84.8

S. Mondal

Technical Manager

87.1

L(Day) Leq: 87.1

Authorised Signatory

For R.V.BRIGGS & CO. (P) LTD.

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### **TEST REPORT**

No. AP-SL/23-24/1100	Date: January 19, 2024	Page 1 of 1
Issued to	: M/S. BOKARO POWER SUPPLY COMPANY (P) LTD.	
Address	: Bokaro Steel City, Bokaro, Jharkhand, Pin: 827001	
Your W.O. No.	: BPSCL/MM/22-23/C-003/LTE-010/50133/2398, dtd. 06.09.202	22
Description of Sample	: Sound Level Monitoring	
Location	: Ball Mill Area	Parameters Tested : L <sub>Min</sub> , L <sub>Max</sub> & L <sub>eq</sub>
Date of Monitoring	: 16.01.2024	Test Method: IS 4758: 1968

SI. No.	Date	Time	Noise Level in dB(A)			Permissible Noise Exposure for Industrial
			L <sub>Min</sub>	L <sub>Max</sub>	L <sub>eq</sub>	Workers as per The Noise Pollution (Regulation And Control) Rules, 2000
1.		10:00 A.M 10:05 A.M.	86.8	89.6	88.0	
2.	-	11:00 A.M 11:05 A.M.	87.5	90.1	88.7	
3.	16.01.2024	12:00 P.M 12:05 P.M.	85.8	88.1	87.3	
4.		01:00 P.M 01:05 P.M.	86.1	89.0	87.9	
5.		02:00 P.M 02:05 P.M.	85.5	88.2	87.0	90 dB(A)
6.		03:00 P.M 03:05 P.M.	83.5	87.2	85.8	
7.		04:00 P.M 04:05 P.M.	85.1	87.4	86.4	
8.		05:00 P.M 05:05 P.M.	86.8	89.8	88.8	
	L(Day) Min: 83.5	L(Day) Max: 90.1		ji.	L(Day) Leq	87.6

Note: - Leg - Equivalent sound energy.

-: END OF TEST REPORT :-

Report Verified by

S. Mondal

Technical Manager Authorised Signatory

For R.V.BRIGGS & CO. (P) LTD.

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CIN: U51109WB1931PTC007007



#### **TEST REPORT**

No. AP-SL/23-24/1101	Date: January 19, 2024	Page 1 of		
Issued to	: M/S. BOKARO POWER SUPPLY COMPANY (P) LTD.			
Address	: Bokaro Steel City, Bokaro, Jharkhand, Pin: 827001			
Your W.O. No.				
Description of Sample	: Sound Level Monitoring			
Location	: Near GM Building	Parameters Tested : L <sub>Min</sub> , L <sub>Max</sub> & L <sub>eq</sub>		
Date of Monitoring	: 15.01.2024	<u>Test Method</u> : IS 4758: 1968		

Day Time ( 06:00 A.M. to 10:00 P.M. )

SI. No.	Date	Time	Noise Level in dB(A)			Norms as per 'The Noise Pollution (Regulation and
			L <sub>Min</sub>	<b>∟</b> Max	L <sub>eq</sub>	Control) Rules, 2000 (Vide S.O. 50 (E) dtd. 11.01.2010 under the Environment (Protection) Act, 1986)' for Industrial area
1.		10:00 A.M 10:05 A.M.	67.5	73.1	70.2	
2.		11:00 A.M 11:05 A.M.	66.6	70.2	68.7	
3.		12:00 P.M 12:05 P.M.	65.6	68.9	67.2	
4.	15.01.2024	01:00 P.M 01:05 P.M.	67.2	71.2	69.7	75 dB(A)
5.		02:00 P.M 02:05 P.M.	68.3	72.3	70.4	
6.		03:00 P.M 03:05 P.M.	67.2	70.6	69.0	
7.		04:00 P.M 04:05 P.M.	66.5	69.2	67.8	
8.		05:00 P.M 05:05 P.M.	65.6	68.2	67.0	
	L(Day) Min: 65.6	L(Day) Max: 73.1			L(Day) Leq	: 68.9

Note: - Leq - Equivalent sound energy.

-: END OF TEST REPORT :-

S. Mondal

Technical Manager **Authorised Signatory** 

For R.V.BRIGGS & CO. (P) LTD.

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CIN: U51109WB1931PTC007007



#### **TEST REPORT**

No. AP-SL/23-24/1102		Date: January 19, 2024 Page 1 o						
Issued to		: M/S. BOKARO POWER SUPPLY COMPANY (P) LTD.						
Address		: Bokaro Steel City, Bokaro, Jharkhand, Pin: 827001						
Your W	/.O. No.	: BPSCL/MM/22-23/C-003/LTE-010/5	0133/2398, dt	d. 06.09.2022				
Description of Sample		: Sound Level Monitoring						
Location		: Water Chemical Treatment Plant			Parameters Tested : L <sub>Min</sub> , L <sub>Max</sub> & L <sub>eq</sub>			
Date of Monitoring		: 15.01.2024	Test Method			: IS 4758 : 1968		
		Day Time ( 06	:00 A.M. to	10:00 P.M.	)			
SI. No.	Date	Time	No	se Level in dB(A)		Permissible Noise Exposure for Industrial		
			L <sub>Min</sub>	L <sub>Max</sub>	L <sub>eq</sub>	Workers as per The Noise Pollution (Regulation And Control) Rules, 2000		
1.	15.01.2024	10:30 A.M 10:35 A.M.	76.7	82.3	80.3			
2.		11:30 A.M 11:35 A.M.	77.1	84.6	82.3			
3.		12:30 P.M 12:35 P.M.	77.5	81.6	79.9			
4.		01:30 P.M 01:35 P.M.	75.1	82.6	79.6	00 (0/4)		
5.		02:30 P.M 02:35 P.M.	77.0	83.2	80.5	90 dB(A)		
6.		03:30 P.M 03:35 P.M.	78.5	82.6	80.7			
7.		04:30 P.M 04:35 P.M.	77.5	84.6	81.4			
						-		

Note: - Leq - Equivalent sound energy.

05:30 P.M. - 05:35 P.M.

L(Day) Max: 84.6

-: END OF TEST REPORT :-

78.8

83.2

Report Verified by

S. Mondal

L(Day) Min: 75.1

Technical Manager **Authorised Signatory** 

81.5

L(Day) Leq: 80.6

For R.V.BRIGGS & CO. (P) LTD.

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