SAIL BOKARO STEEL PLANT
ENVIRONMENT CONTROL DEPARTMENT

Compliance to the conditions laid down by MoEF for issuing Modified Environmental Clearance for the proposed Modernization / Expansion of Bokaro Steel Plant from 4.5 MT Hot metal to 5.77 MT hot metal. (4MT crude steel to 4.606 MT crude steel)for the period from October'2016 to March'2017.

A. COMPLIANCE TO SPECIFIC CONDITIONS

i. On-line stack monitoring facilities for all the stacks and sufficient air pollution control devices shall be provided to keep the emission levels below 100 mg/Nm3. In cement Plant, limit of PM emission shall be controlled within 50 mg/Nm3 by installing adequate air pollution control system.

Status:

On-line Stack monitoring system has been installed in 19 (Nineteen) stacks of SAIL/BSL. Provision of suitable pollution control measures have been made in all stacks .The Emission level in all stacks of SAIL/BSL are well within stipulated norms.

ii. All the standards prescribed for the coke oven Plants shall be followed as per the latest guidelines. Proper and full utilization of coke oven gases in power plant using waste heat recovery steam generators should be ensured and no flue gases shall be discharged into the air.

Status:

- PLD, PLL and PLO in all batteries are maintained below stipulated norms.
- Emission in all stacks well below 50 mg/Nm3 stipulated norm.
- Fugitive Emission in all shops is within norm.
- Coke Oven gas is being utilized fully and judiciously in BSL.
- Excess gas is being utilized in Power Plant.
- Rebuilding of Battery #7 has been started.
- Batt#3 & Batt#4 have been commissioned after cold repair.
- Batt#8 has been taken under shut down for its rebuilding.

iii. Gaseous emission levels including secondary fugitive emissions from blast furnace and sinter plant shall be controlled within the latest permissible limits issued by the Ministry and regularly monitored. Guidelines / code of practice issued by the CPCB should be followed.

Status:

Gaseous emission level including secondary fugitive emissions in Blast Furnace & Sinter Plant are within latest permissible limit. The fugitive emission level in different areas of the Plant, including BF & SP is monitored regularly and the reports are being sent to CPCB every month.

***iv. Efforts shall be made to reduce impact of the transport of the raw materials and end products on the surrounding environment including agricultural land. All the raw materials including fly ash shall be transported in the closed containers only and shall not be overloaded. Vehicular emissions shall be regularly monitored*.**

Status:

All the raw materials are transported in railway wagons and products are also transported either by rails or by road. Even the granulated BF slag is transported through conveyer belt& trucks after properly covering it with tarpaulin/ plastic sheets. Regular camps are being organized inside the plant to monitor vehicular emission.

v. Prior "Permission" for the drawal of the additional water required (3600 m3/hr) and shall be sourced from Tenughat for which BSL has permission. The entire quantity of water will be treated and recycled.

Status:

The additional water requirements of the new units are being met through the existing permitted make up water quantity sourced from Tenughat through open canal and the drawls are well within the permitted quantity. The work has been started for complete treatment and recycling work of OF-1 & OF-2 effluent.

vi. The company shall re-assess the additional water required and submit a detailed plan to minimize water consumption. "Zero" effluent discharge shall be strictly followed and no wastewater shall be discharged outside the premises.

Status:

Total quantity of waste water discharged through all two outfalls (**Outfall-3; Due to huge excavation work in new CRM-3 area, this outfall cease to exist)** will be treated and recycled back in cooling ponds for plant operation. In order to achieve Zero Liquid Discharge Status for the plant ,the job of complete treatment & recycling of OF-1 & OF-2 has been started. Total treated BOD plant water is being used for coke quenching.

vii. Continuous monitoring of Total Organic Compounds (TOC) shall be done at the outlet of ETP (BOD Plant).

Status:

Continuous TOC monitoring system has been installed in BOD plant outlet.

viii. All the blast furnace (BF) slag shall be granulated and used to cement manufacture. Flue dust from pellet plant sinter plant and SMS and sludge from BF shall be reused in sinter Plant. Coke breeze from coke oven plant shall be used in sinter and pellet plant. SMS slag shall be given for metal recovery or properly utilized. All the other solid waste including broken refractory mass shall be properly disposed off in environment-friendly manner.

Status:

At present BSL is having facility of (CHSGP) on line cast house slag granulation in BF 4 and BF 5, CHSGP#3 of BF-2 & CHSGP #6 of BF-3. CHSGP #5 of BF-3 & CHSGP#4 of BF-2 are expected to be commissioned by end of December'2017. CHSGP-1 & CHSGP-2 of BF#1 are expected to be commissioned along with the commissioning of BF#1 which is presently under capital repair. During October'2016 to Marchr'2017 the BF Slag utilization including land filling was around 99.99%. After the commissioning of all CHSGP'S in BSL 100% BF Slag granulation would be achieved**. Total BF granulated slag is being used for cement making in Dalmia Cement plant.**

The utilization of SMS slag for the period from October'2016 to Marchr'2017 was 91.07% Total quantity of all other solid wastes such as, coke breeze, BF flue dust, lime dust, mill scales are being utilized in Sinter Plant for sinter making.

ix. A time bound action plan shall be submitted to reduce solid waste, its proper utilization and disposal.

Status:

Total solid waste utilization during current financial year 2016-17 was 98% However, after completion of modernization /expansion project total solid waste utilization is expected to be around 100%.

x. Efforts shall be made to use low grade lime, more fly ash and solid waste in the cement manufacturing.

Status: N/A

xi. Proper utilization of fly ash shall be ensured as per Fly ash Notification, 1999 and subsequent amendment in 2003.

Status:

Not Applicable. BSL does not have captive power plant. Power plant is owned by a JV company M/s BPSCL(JV of DVC&SAIL).

xii. As proposed, green belt should be developed in 33% area.

Status:

The existing plantations are being strengthened to increase density. Till date BSL has planted around 42.43 Lakhs trees in and outside Bokaro Steel Plant. During 2016-17, 20700 saplings have been planted. During 2017-18 SAIL/BSL has planned for plantation of more than (02) Two Lakh saplings. At present total green cover is around 33%.

xiii. All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Steel plants should be implemented.

Status:

a. Fugitive emission (PLD, PLL & PLO) from Coke Oven Batteries are within norm.
b. Rebuilding of Batt#7 is in progress. The rebuilding of Batt#8 has also been started. **Battery rebuilding at Bokaro is ahead of CREP schedule.**
c. Fugitive emission in Steel melting shops of BSL are within norm.
d. LD slag utilization in the stipulated period was more than 91%
e. BF slag utilization is around 99.99% (including land filling). It is expected to be 100% after CHSGP installation in BF1, BF 2 and BF 3.
f. CDI facility is available in BF-2, BF-3, BF- 4 and BF- 5. CDI facility in BF-1 has also been proposed.
g. The average specific water consumption for the period was 4.11 m^3/tcs which is below CREP norm.
h. Phenol & ammonia content in BOD Plant effluent is below stipulated norm.

Running of all pollution control equipments are being monitored closely and quarterly compliance reports being sent to CPCB as per CREP guidelines.

xiv. The commitments made during public hearing shall be complied with. An action plan in this respect shall be submitted to the Ministry's Regional Office at Bhubaneswar.

Status:

All commitments made during public hearing on 18.3.2008 are being complied with

- Two number of Continuous Ambient Air Quality Monitoring Station have been installed & commissioned. Its data signals have been uplinked to CPCB & JSPCB server.
- Seven ambient air quality monitoring stations have been installed. All twelve parameters as per new Notification are being monitored since March'2014.
- Stack emission level in all shops are below stipulated norm.
- Noise level at different locations in almost all the shops below norm.
- All the roads are regularly maintained.
- Vehicular pollution monitoring camp was organized inside Bokaro Steel Plant.
- In SP, ESP# 6 has been commissioned.
- Around 20700 new saplings have been planted during 2016-17 .During 2017-18 it has been planned to plant around two lakh saplings.
- Dry fog dust suppression system has been installed in Coal Handling and coke sorting plant of Coke Oven Department.

xv. As proposed, Rs. 749.5 crores and Rs. 112.5 crores earmarked towards capital cost and recurring cost/annum for environment pollution control measures shall be judiciously utilized to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government. The funds so provided shall not be diverted for any other purpose.

Status:

All the funds allocated for pollution control equipment are being utilized judiciously.

- Dry fog dust suppression system has been installed in BF 1, & the same has been installed in Coal Handling Plant and Coke Sorting Plant of Coke Oven department.
- All ESPs of RMP Kilns will be refurbished. The work order for the same has been issued.
- Multi-cyclones in Sinter Plant are being replaced by Electro Static Precipitator.
- CHSGP in BF1, BF-2 and BF-3 are to be installed by December'2017.
- New shops that will come up after modernization will have zero discharge facility. Construction of ETP in CRM# 3 has been completed. A new tertiary treatment plant is being installed in CRM#3 for complete Zero discharge from the plant. Work is under progress.

xvi. Provision shall be made for the housing of construction labour within the site with all the necessary infrastructure and facilities such as fuel for cooking, mobile, toilets, mobile STP, Safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

Status:

All the facilities have been provided to the construction workers.

Housing, Drinking water, toilets medical and other basic amenities are being provided.

A Crèche has been commissioned for the children of female contract labourer.

B. COMPLIANCE OF GENERAL CONDITIONS.

i. The project authorities must strictly adhere to the stipulations made by the Jharkhand State Pollution Control Board (JSPCB) and the State Government.

Status:

Stipulations made by Jharkhand State Pollution Control Board are being complied and Progress report is regularly being sent to JSPCB.

ii. No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests.

Status:

BSL is committed to its expansion plan from 4 MT crude steel per annum to 4.606 MT crude steel per annum, for which Modified Environmental Clearance has been obtained.. No expansion or modification will be carried out without ministry's prior approval.

iii. The gaseous emissions from various process units shall conform to the load/mass based standards notified by this Ministry on 19th May, 1993 and standards prescribed from time to time. The Jharkhand Pollution Control Board (JPCB)) may specify more stringent standards for the relevant parameters keeping in view the nature of the industry and its size and location. At no time, the emission level shall go beyond the prescribed standards. Interlocking facilities shall be provided so that process can be automatically stopped in case emission level exceeds the limit.

Status:

Gaseous emissions from various process units are conforming to the norm stipulated by Ministry and JSPCB. It is monitored regularly and its reports are being sent regularly to CPCB & JSPCB on monthly basis.

iv. At least four ambient air quality monitoring stations shall be established in the downward direction as well as where maximum ground level concentration of SPM, SO2 and NOx are anticipated in consultation with the JPCB.
Data on ambient air quality and stack emission shall be regularly submitted to this Ministry including its Regional Office at Bhubaneswar and the JPCB / CPCB once in six months.

Status:

Seven Ambient Air Quality Monitoring Stations have been set up at different locations surrounding the Plant. All 12 parameters are being monitored through in house and third party laboratory(M/s MECON). The Reports are being sent to CPCB every month. Ambient Air Quality monitoring report of stipulated period has been enclosed. Two nos. of Continuous Ambient Air Quality Stations have also been installed & uplinked to CPCB & JSPCB servers.

v. In-plant control measures for checking fugitive emissions from all the vulnerable sources shall be provided. Further, specific measures like water sprinkling around the coal stockpiles and asphalting or concreting of the roads shall be done to control fugitive emissions.

Status:

Fugitive emissions from Coke Oven Batteries are monitored regularly. PLD, PLL and PLO level in all Coke Oven Batteries are well within stipulated norm. Water is regularly sprinkled to suppress fugitive emission at different dusty areas including coal stock piles. Dry fog dust suppression system has been installed in BF # 1 and coke shorting & Coal handling plant in coke ovens. ESP based de dusting system has been installed in cast house of BF#2.

vi. Industrial wastewater shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. The treated wastewater shall be utilized for plantation purpose.

Status:

Industrial waste water from Coke Oven & By Product Plant is collected and treated in ETP (BOD) Plant. All the pollutant level after treatment are well within stipulated norm. This water is being used for quenching of coke. The effluents from all other plants are being treated prior to disposal.

vii. The overall noise levels in and around the plant area shall be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA(day time) and 70 dBA (night time).

Status:

Noise level in various areas are being monitored regularly. Noise level in almost all areas are below stipulated norm. The provision of snort valve in BF & acoustic enclosures in Oxygen plant are there the control the noise at source. Noise level is monitored regularly and reported to CPCB every month. Day and night time ambient noise level is also monitored at different locations. It is also reported to CPCB on monthly basis.

viii. Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.

Status:

Health status of all the workers including contract labourer is regularly monitored by Occupational Health Service Centre inside the Plant. The health status record is regularly maintained by them.

ix. The company shall develop rain water harvesting structures to harvest the rain water for utilization in the lean season besides recharging the ground water table.

Status:

A project for Rain Water Harvesting has been taken up in CRM#2 complex. The project is expected to be commissioned by June'2018. Rain water Harvesting facility would be an integral part of all new projects.

x. The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EIA/EMP report. Further, the company must undertake socio-economic development activities in the surrounding villages like community development programmes. Educational programmes, drinking water supply and health care etc. Suggestions made during the public hearing shall be implemented.

Status:
All the Environmental protection measures and safe guards recommended in EIA/EMP report are being complied.

- Bokaro Steel has adopted Seven villages near its plant under CSR.
- All connecting roads have been constructed by BSL.
- School buildings have been constructed in each village.
- Health camps are arranged in each village adopted by BSL, However there is a Sarva Swasthya Kendra for free treatment of Non-entitled people..
- Drinking water facility such as hand pumps have been installed.
- Community center building has been built by BSL. Sarva Swasthya kendra to take care the free medical facilities for under privileged class.
- Provision of kalayan vidyalaya with mid- day meals for poor children from in and around the town ship.
- Under Swachchh Bharat Abhiyan , Toilets are being constructed in these villages.

xi. The Regional Office of the Ministry at Bhubaneswar CPCB/JSPCB shall monitor the stipulated conditions. A six monthly compliance report and the monitored data along with statistical interpretation shall be submitted to them regularly.

Status:
Six monthly compliance report and the monitored data are being submitted to Regional MoEF office Ranchi.

xii. The Project Proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the JPCB and may also be seen at Website of the Ministry of Environment and Forests at http./envfor.nic.in. This shall be advertised within seven days from the date of issue of the clearance letter. At least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the Regional Office at Bhubaneswar.

Status:
Advertisements were given in two local dailies within seven days of getting the Environment Clearance from MoEF.

Project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.

Status:
Regional office of Jharkhand State Pollution Control Board is being updated as and when required about the financial closure and final approval.

ENCLOSURES:

STACK EMISSION

OCT'2016

Name of the Plant	Stack connected to (Name of the unit)	Height of the stack (m)	Diameter of the stack (m)	Pollution Control unit provided (Name)	Date & Time of the monitoring (duration)	Production fig. of the unit, during the period of monitoring	Flow rate of the flue gas (NM^3/Hr)	Parameters (whichever are applicable)				
1	2	3	4	5	6	7	8	9				
Blast Furnace (Space dedusting) & Stoves								**Particulate matter (PM)** (mg/Nm^3)	**SO_2** (mg/Nm^3)	**NO_x** (mg/Nm^3)	**HC**	**CO** Kg/TDCP Vol./vol.
BF-1	Chimney-1	50 mtr.	8.2mtrs.	Wet scruber	Under Capital Repair							
BF-2	Chimney-2	50 mtr.	8.2mtrs.	Wet scruber	07.10.16	6510T	242526	72.86	-	-	-	-
BF-3	Chimney-2	50 mtr.	8.2mtrs.	Wet scruber					-		-	-
BF-4	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber	16.10.16	3030 T	218642	66.23	-	-	-	-
BF-5	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber							-	-
BF Stoves-2	Chimney-2	70 mtr.	3.5mtrs.	-	24.10.16	3968T	108736	30.78	34.60	31.51	-	0.60%
Standards : Charging side chimney- PM - 100 (Units: mg/Nm^3) **BF Stoves – PM- 50 mg/Nm3, SO2- 250 mg/Nm3, NOX- 150 mg/Nm3 CO- 1% v/v (Max)** • BF#1 is connected to chimney no-1 , BF#2&BF#3 are connected to chimney no-2 and BF#4&BF#5 are connected to chimney no-3 Each BF stove is connected to corresponding chimney No.												
Refractory Material plant												
Kiln-1	Stack – 1	80 mtr.	3.3mtrs	ESP's	21.10.16	11.25T/hr	148159	139.26	47.0	29	-	-
Kiln-2	Stack – 1	80 mtr.	3.3mtrs	ESP's	21.10.16	11.04T/hr	147075	147.35	46.0	26	-	-
Kiln-3	Stack – 2	80 mtr.	3.3mtrs	ESP's						-	-	-
Kiln-4	Stack – 2	80 mtr.	3.3mtrs	ESP;s	08.10.16	11.25T/hr	145325	144	66.0	32	-	-
Kiln-5	Stack – 3	80 mtr.	3.3mtrs	ESP's						-	-	-
Kiln-6	Stack – 3	80 mtr.	3.3mtrs	ESP's						-	-	-

Standards: PM - 150 , SO2 - , NOx - , CO - (Units: mg/Nm^3) Monitoring values for corresponding Kiln duct. Two Kilns through individual Ducts are connected to a common stack.

SMS – 1 (Process)					**Date**		**Flow rate (NM^3/Hr)**	**PM (mg/Nm^3)**	**SO_2 (mg/Nm^3)**	**NO_x (mg/Nm^3)**	HC	CO
Conv. – 1 (NB)	Stack – 1	100 m	4.3mtrs	Wet scrubber		-	-	-	-	-	-	-
Conv. – 1 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber	13.10.16	-	244236	196.20	75.60	-	-	-
Conv. – 2 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber	-	-	Under capital repair				-	-
Conv. – 3(BL)	Stack – 1	100m	4.3mtrs	Wet scrubber	06.10.16	-	248880	238.13	82.50	-	-	-
Conv. – 3 (NB)	Stack – 1	100 m	4.3mtrs	Wet scrubber	06.10.16	-	110216	34.90	-	-	-	-
Conv. – 4 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber	09.10.16	-	-	-	-	-	-	-
Conv. – 5(BL)	Stack – 1	100m	4.3mtrs	Wet scrubber	Under Modernization						-	-
SMS-2/CCS	LF-1	80m	1.25m	Bag filter	24.10.16	-	109232	20.26	-	-	-	-

Standard : PM - 300, SO2 - , NOx - , CO - * Monitored in individual ducts(of dia 2.5 m each) from corresponding converters. SMS-2/CCS Stack -PM #50mg/Nm3 All ducts are connected to a common stack

(Units: mg/Nm^3)

Coke Oven												
Batt. # 1	Stack – 1	100 m.	3.5mtrs	-	22.10.16	-	146168	28.62	196.21	46.26	-	1.92
Batt. # 2	Stack – 2	100 m.	3.5mtrs	-	18.10.16	-	144586	28.38	186.26	38.42	-	1.88
Batt # 3	Stack - 3	100 m	3.5 mtrs	-	03.10.16	-	142109	42.85	265.72	75.12	-	2.54
Batt. # 4	Stack – 4	100 m.	3.5 mtrs	-	22.10.16	-	139854	28.52	251.00	42.35	-	2.25
Batt. # 5	Stack – 5	100 m.	3.5mtrs	-	04.10.16	-	142365	43.76	272.36	64.83	-	2.68
Batt # 6	Stack - 6	100 m.	3.5 mts	-	25.10.16	-	147326	46.26	248.50	56.26	-	2.70
Batt. # 7	Stack – 7	100 m.	3.5mtrs	Under Rebuilding								
Batt. # 8	Stack – 8	100 m.	3.5mtrs	Shut down for Rebuilding								

Standard: PM - 50, SO2 - 800, NOx - 500, CO – 3.00 Kg/TDCP, HC - (Units: mg/Nm^3)

Sinter Plant												
SM-1	Duct-A	100 m.*	8.5mtrs	Batt. cyclone	03.10.16	-	386674	146.24	88.82	26.00	-	-
	Duct-B		8.5mtrs	Batt. cyclone	03.10.16	-	388882	142.42	92.12	28.00	-	-
SM-2	Duct-A		8.5mtrs	Batt. cyclone	31.10.16	-	378007	147.47	105.20	32.30	-	-
	Duct-B		8.5mtrs	Batt. cyclone	31.10.16	-	389424	135.20	86.30	30.40	-	-
SM-3	Duct-A		8.5mtrs	Batt. cyclone	20.10.16	-	396684	145.23	65.00	25.02	-	-
	Duct-B		8.5mtrs	ESP-6	20.10.16	-	362162	52	67.00	41.00	-	-

Standard: PM - 150 , SO2 - , NOx - (Units: mg/Nm^3) * All three Sinter M/c Exhaust are connected to a common single stack of 100m height

NOV'2016

Name of the Plant	Stack connected to (Name of the unit)	Height of the stack (m)	Diameter of the stack (m)	Pollution Control unit provided (Name)	Date & Time of the monitoring (duration)	Production fig. of the unit, during the period of monitoring	Flow rate of the flue gas (NM^3/Hr)	Parameters (whichever are applicable)				
1	2	3	4	5	6	7	8	9				
Blast Furnace (Space dedusting) & Stoves								**Particulate matter (PM)** (mg/Nm^3)	**SO_2** (mg/Nm^3)	**NO_x** (mg/Nm^3)	**HC**	**CO** Kg/TDCP Vol./vol.
BF-1	Chimney-1	50 mtr.	8.2mtrs.	Wet scruber	Under Capital Repair							
BF-2	Chimney-2	50 mtr.	8.2mtrs.	Wet scruber	23.11.16	7676 T/day	275234	77.52	-	-	-	-
BF-3	Chimney-2	50 mtr.	8.2mtrs.	Wet scruber					-		-	-
BF-4	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber	07.11.16	2934 T/day	256754	58.69	-	-	-	-
BF-5	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber							-	-
BF Stoves-3	Chimney-3	70 mtr.	3.5mtrs.	-	30.11.16	2880 T/day	112624	34.66	33.94	39.69	-	0.58%
Standards : Charging side chimney- PM - 100 (Units: mg/Nm^3) **BF Stoves – PM- 50 mg/Nm3, SO2- 250 mg/Nm3, NOX- 150 mg/Nm3 CO- 1% v/v (Max)** • BF#1 is connected to chimney no-1 , BF#2&BF#3 are connected to chimney no-2 and BF#4&BF#5 are connected to chimney no-3 Each BF stove is connected to corresponding chimney No.												
Refractory Material plant												
Kiln-1	Stack – 1	80 mtr.	3.3mtrs	ESP's							-	-
Kiln-2	Stack – 1	80 mtr.	3.3mtrs	ESP's	10.11.16	11.19T/hr	149638	145.76	76.52		-	-
Kiln-3	Stack – 2	80 mtr.	3.3mtrs	ESP's	21.11.16	10.51T/hr	150281	148.70	82.54	-	-	-
Kiln-4	Stack – 2	80 mtr.	3.3mtrs	ESP;s							-	-
Kiln-5	Stack – 3	80 mtr.	3.3mtrs	ESP's	26.11.16	10.80T/hr	152493	146.79	95.86	-	-	-
Kiln-6	Stack – 3	80 mtr.	3.3mtrs	ESP's	17.11.16	11.14T/hr	153254	149.30	65.64	-	-	-

Standards: PM - 150 , SO2 - , NOx - , CO - (Units: mg/Nm^3)

Monitoring values for corresponding Kiln duct. Two Kilns through individual Ducts are connected to a common stack.

SMS – 1 (Process)					**Date**		**Flow rate (NM^3/Hr)**	**PM (mg/Nm^3)**	**SO_2 (mg/Nm^3)**	**NO_x (mg/Nm^3)**	HC	CO
Conv. – 1 (NB)	Stack – 1	100 m	4.3mtrs	Wet scrubber		-	-	-	-	-	-	-
Conv. – 1 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber		Maximum metal was taken through SMS-2 CCS Route					-	-
Conv. – 2 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber		-	-	-	-	-	-	-
Conv. – 3(BL)	Stack – 1	100m	4.3mtrs	Wet scrubber		-				-	-	-
Conv. – 4 (NB)	Stack – 1	100 m	4.3mtrs	Wet scrubber	08.11.16	-	102625	40.82	-	-	-	-
Conv. – 4 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber	08.11.16	-	246179	226.15	79.35	-	-	-
Conv. – 5(BL)	Stack – 1	100m	4.3mtrs	Wet scrubber	Under Modernization						-	-
SMS-2/CCS	LF-2	80m	1.25m	Bag filter	29.11.16	-	115216	23.66	-	-	-	-

Standard : PM - 300, SO2 - , NOx - , CO - * Monitored in individual ducts(of dia 2.5 m each) from corresponding converters. SMS-2/CCS Stack -PM #50mg/Nm3
(Units: mg/Nm^3) All ducts are connected to a common stack

Coke Oven												
Batt. # 1	Stack – 1	100 m.	3.5mtrs	-	28.11.16	-	146528	24.82	238.06	61.98	-	1.89
Batt. # 2	Stack – 2	100 m.	3.5mtrs	-	19.11.16	-	145169	30.46	280.96	60.39	-	1.38
Batt # 3	Stack - 3	100 m	3.5 mtrs	-	05.11.16	-	139772	36.45	215.72	58.30	-	1.78
Batt. # 4	Stack – 4	100 m.	3.5 mtrs	-	16.11.16	-	143420	29.87	240.16	50.15	-	2.05
Batt. # 5	Stack – 5	100 m.	3.5mtrs	-	02.11.16	-	154657	47.01	194.51	51.48	-	2.16
Batt # 6	Stack - 6	100 m.	3.5 mts	-	12.11.16	-	149865	48.22	216.54	41.85	-	2.02
Batt. # 7	Stack – 7	100 m.	3.5mtrs	Under Rebuilding								
Batt. # 8	Stack – 8	100 m.	3.5mtrs	Shut down for Rebuilding								

Standard: PM - 50, SO2 - 800, NOx - 500, CO – 3.00 Kg/TDCP, HC - (Units: mg/Nm^3)

Sinter Plant												
SM-1	Duct-A	100 m.*	3.5mtrs	Batt. cyclone	17.11.16	-	317798	144.03	139.66		-	-
	Duct-B		3.5mtrs	Batt. cyclone	17.11.16	-	326875	146.92	110.51		-	-
SM-2	Duct-A		3.5mtrs	Batt. cyclone	15.11.16	-	356205	144.77	88.76		-	-
	Duct-B		3.5mtrs	Batt. cyclone	15.11.16	-	365214	148.30	80.10		-	-
SM-3	Duct-A		3.5mtrs	Batt. cyclone	03.11.16	-	370516	146.52	105.75		-	-
	Duct-B		3.5mtrs	ESP-6	03.11.16	-	386354	53.6	97.24		-	-

Standard: PM - 150 , SO2 - , NOx - (Units: mg/Nm^3) * All three Sinter M/c Exhaust are connected to a common single stack of 100m height

DEC'2016

Name of the Plant	Stack connected to (Name of the unit)	Height of the stack (m)	Diameter of the stack (m)	Pollution Control unit provided (Name)	Date & Time of the monitoring (duration)	Production fig. of the unit, during the period of monitoring	Flow rate of the flue gas (NM^3/Hr)	Parameters (whichever are applicable)				
1	2	3	4	5	6	7	8	9				
Blast Furnace (Space dedusting) & Stoves								**Particulate matter (PM)** (mg/Nm^3)	**SO_2** (mg/Nm^3)	**NO_x** (mg/Nm^3)	**HC**	**CO** Kg/TDCP Vol./vol.
BF-1	Chimney-1	50 mtr.	8.2mtrs.	Wet scruber	Under Capital Repair							
BF-2	Chimney-2	50 mtr.	8.2mtrs.	Wet scruber	06.12.16	6801 T	268782	74.46	-	-	-	-
BF-3	Chimney-2	50 mtr.	8.2mtrs.	Wet scruber					-		-	-
BF-4	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber	20.12.16	2906 T	258459	60.34	-	-	-	-
BF-5	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber							-	-
BF Stoves-2	Chimney-2	70 mtr.	3.5mtrs.	-	13.12.16	4570 T	112562	32.75	42.08	36.42	-	0.61%
Standards : Charging side chimney- PM - 100 (Units: mg/Nm^3) **BF Stoves – PM- 50 mg/Nm3, SO2- 250 mg/Nm3, NOX- 150 mg/Nm3 CO- 1% v/v (Max)** • BF#1 is connected to chimney no-1 , BF#2&BF#3 are connected to chimney no-2 and BF#4&BF#5 are connected to chimney no-3 Each BF stove is connected to corresponding chimney No.												
Refractory Material plant												
Kiln-1	Stack – 1	80 mtr.	3.3mtrs	ESP's	19.12.16	10.75 T/hr	146232	142.95	68.96	-	-	-
Kiln-2	Stack – 1	80 mtr.	3.3mtrs	ESP's	15.12.16	11.25 T/hr	152862	144.25	76.26	-	-	-
Kiln-3	Stack – 2	80 mtr.	3.3mtrs	ESP's	26.12.16	11.00 T/hr	153731	147.60	81.84	-	-	-
Kiln-4	Stack – 2	80 mtr.	3.3mtrs	ESP;s	-	-	-	-	-		-	-
Kiln-5	Stack – 3	80 mtr.	3.3mtrs	ESP's	05.12.16	11.25 T/hr	143944	138.54	69.20	-	-	-
Kiln-6	Stack – 3	80 mtr.	3.3mtrs	ESP's	-	-	-	-		-	-	-

Standards: PM - 150 , SO2 - , NOx - , CO - (Units: mg/Nm^3)

Monitoring values for corresponding Kiln duct. Two Kilns through individual Ducts are connected to a common stack.

SMS – 1 (Process)					**Date**		**Flow rate (NM^3/Hr)**	**PM (mg/Nm^3)**	**SO_2 (mg/Nm^3)**	**NO_x (mg/Nm^3)**	HC	CO
Conv. – 1 (NB)	Stack – 1	100 m	4.3mtrs	Wet scrubber		-	-	-	-	-	-	-
Conv. – 1 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber		Maximum metal was taken through SMS-2 route						-
Conv. – 2 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber		-	-	-	-	-	-	-
Conv. – 3(BL)	Stack – 1	100m	4.3mtrs	Wet scrubber	09.12.16	-	231337	216.62	78.84	-	-	-
Conv. – 3 (NB)	Stack – 1	100 m	4.3mtrs	Wet scrubber	09.12.16		101532	23.16	-	-	-	-
Conv. – 4 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber	27.12.16		243516	236.86	92.16	-	-	-
Conv. – 5(BL)	Stack – 1	100m	4.3mtrs	Wet scrubber	Under Modernization						-	-
SMS-2/CCS	LF-1	80m	1.25m	Bag filter	22.12.16		108564	24.65	-	-	-	-

Standard : PM - 300, SO2 - , NOx - , CO - * Monitored in individual ducts(of dia 2.5 m each) from corresponding converters. SMS-2/CCS Stack -PM #50mg/Nm3 **(Units: mg/Nm^3)** All ducts are connected to a common stack

Coke Oven												
Batt. # 1	Stack – 1	100 m.	3.5mtrs	-	12.12.16	-	138730	28.92	216.15	46.90	-	2.06
Batt. # 2	Stack – 2	100 m.	3.5mtrs	-	07.12.16	-	145862	34.06	238.06	57.73	-	2.14
Batt # 3	Stack - 3	100 m	3.5 mtrs	-	24.12.16	-	146713	26.58	194.77	53.71	-	2.37
Batt. # 4	Stack – 4	100 m.	3.5 mtrs	-	29.12.16	-	152162	22.34	234.16	50.72	-	2.54
Batt. # 5	Stack – 5	100 m.	3.5mtrs	-	01.12.16	-	143641	46.51	248.06	61.01	-	2.82
Batt # 6	Stack - 6	100 m.	3.5 mts	-	23.12.16		140511	42.81	208.96	55.66	-	2.64
Batt. # 7	Stack – 7	100 m.	3.5mtrs	-Under Rebuilding								
Batt. # 8	Stack – 8	100 m.	3.5mtrs	Shut down for Rebuilding								

Standard: PM - 50, SO2 - 800, NOx - 500, CO – 3.00 Kg/TDCP, HC - (Units: mg/Nm^3)

Sinter Plant												
SM-1	Duct-A	100 m.*	3.5mtrs	Batt. cyclone	08.12.16	-	341676	145.50	120.34	-	-	-
	Duct-B		3.5mtrs	Batt. cyclone	08.12.16	-	350288	146.72	109.58	58.63	-	-
SM-2	Duct-A		3.5mtrs	Batt. cyclone	03.12.16	-	356209	144.06	98.35	-	-	-
	Duct-B		3.5mtrs	Batt. cyclone	03.12.16	-	340729	145.42	95.04	52.46	-	-
SM-3	Duct-A		3.5mtrs	Batt. cyclone	17.12.16	-	381453	146.14	89.06	-	-	-
	Duct-B		3.5mtrs	ESP-6	17.12.16		311627	56.44	87.34	48.65	-	-

Standard: PM - 150 , SO2 - , NOx - (Units: mg/Nm^3)

* All three Sinter M/c Exhaust are connected to a common single stack of 100m height

JAN'2017

Name of the Plant	Stack connected to (Name of the unit)	Height of the stack (m)	Diameter of the stack (m)	Pollution Control unit provided (Name)	Date & Time of the monitoring (duration)	Production fig. of the unit, during the period of monitoring	Flow rate of the flue gas (NM^3/Hr)	Parameters (whichever are applicable)				
1	2	3	4	5	6	7	8	9				
Blast Furnace (Space dedusting) & Stoves								**Particulate matter (PM)** (mg/Nm^3)	**SO_2** (mg/Nm^3)	**NO_x** (mg/Nm^3)	**HC**	**CO** Kg/TDCP Vol./vol.
BF-1	Chimney-1	50 mtr.	8.2mtrs.	Wet scruber	Under Capital Repair							
BF-2	Chimney-2	50 mtr.	8.2mtrs.	Wet scruber					-	-	-	-
BF-3	Chimney-2	50 mtr.	8.2mtrs.	Wet scruber	20.01.17	7600 T	270624	81.57	-		-	-
BF-4	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber	06.01.17	3089 T	262764	54.85	-	-	-	-
BF-5	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber							-	-
BF Stoves-3	Chimney-3	70 mtr.	3.5mtrs.	-	27.01.17	3081 T	108729	30.52	36.72	29.57	-	0.59%
Standards : Charging side chimney- PM - 100 (Units: mg/Nm^3) **BF Stoves – PM- 50 mg/Nm3, SO2- 250 mg/Nm3, NOX- 150 mg/Nm3 CO- 1% v/v (Max)**												
• BF#1 is connected to chimney no-1 , BF#2&BF#3 are connected to chimney no-2 and BF#4&BF#5 are connected to chimney no-3 Each BF stove is connected to corresponding chimney No.												
Refractory Material plant												
Kiln-1	Stack – 1	80 mtr.	3.3mtrs	ESP's	-	-	-	--	-	-	-	-
Kiln-2	Stack – 1	80 mtr.	3.3mtrs	ESP's	-	-	-	-	-	-	-	-
Kiln-3	Stack – 2	80 mtr.	3.3mtrs	ESP's	28.01.17	10.52 T/hr	142911	146.20	90.76	-	-	-
Kiln-4	Stack – 2	80 mtr.	3.3mtrs	ESP;s	-	-	-	-	-		-	-
Kiln-5	Stack – 3	80 mtr.	3.3mtrs	ESP's	23.01.17	11.14 T/hr	140907	139.89	79.67	-	-	-
Kiln-6	Stack – 3	80 mtr.	3.3mtrs	ESP's	30.01.17	11.25 T/hr	144825	148.26	89.90	-	-	-

Standards: PM - 150 , SO2 - , NOx - , CO - (Units: mg/Nm^3)

Monitoring values for corresponding Kiln duct. Two Kilns through individual Ducts are connected to a common stack.

SMS – 1 (Process)					**Date**		**Flow rate (NM^3/Hr)**	**PM (mg/Nm^3)**	**SO_2 (mg/Nm^3)**	**NO_x (mg/Nm^3)**	HC	CO
Conv. – 1 (NB)	Stack – 1	100 m	4.3mtrs	Wet scrubber		-	-	-	-	-	-	-
Conv. – 1 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber		Maximum metal was taken through SMS-2 route						-
Conv. – 2 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber		-	-	-	-	-	-	-
Conv. – 3(BL)	Stack – 1	100m	4.3mtrs	Wet scrubber	31.01.17	-	242360	221.16	68.18	-	-	-
Conv. –4 (NB)	Stack – 1	100 m	4.3mtrs	Wet scrubber	21.01.17		107116	28.15	-	-	-	-
Conv. – 4 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber	21.01.17		245108	242.06	74.34	-	-	-
Conv. – 5(BL)	Stack – 1	100m	4.3mtrs	Wet scrubber	Under Modernization						-	-
SMS-2/CCS	LF-2	80m	1.25m	Bag filter	26.01.17	-	112532	28.16	-	-	-	-

Standard : PM - 300, SO2 - , NOx - , CO - * Monitored in individual ducts(of dia 2.5 m each) from corresponding converters. SMS-2/CCS Stack -PM #50mg/Nm3
(Units: mg/Nm^3) All ducts are connected to a common stack

Coke Oven												
Batt. # 1	Stack – 1	100 m.	3.5mtrs	-	14.01.17	-	139579	26.88	226.32	56.45	-	1.96
Batt. # 2	Stack – 2	100 m.	3.5mtrs	-	09.01.17	-	140036	30.40	208.14	61.38	-	2.05
Batt # 3	Stack - 3	100 m	3.5 mtrs	-	05.01.17	-	142150	22.54	236.11	56.32	-	2.24
Batt. # 4	Stack – 4	100 m.	3.5 mtrs	-	24.01.16	-	145621	28.48	200.95	49.35	-	2.12
Batt. # 5	Stack – 5	100 m.	3.5mtrs	-	18.01.17	-	149710	46.04	215.32	52.36	-	2.78
Batt # 6	Stack - 6	100 m.	3.5 mts	-	02.01.17		148814	38.02	237.41	53.29	-	2.56
Batt. # 7	Stack – 7	100 m.	3.5mtrs	-Under Rebuilding								
Batt. # 8	Stack – 8	100 m.	3.5mtrs	Shut down for Rebuilding								

Standard: PM - 50, SO2 - 800, NOx - 500, CO – 3.00 Kg/TDCP, HC - (Units: mg/Nm^3)

Sinter Plant												
SM-1	Duct-A	100 m.*	3.5mtrs	Batt. cyclone	17.01.18	-	365680	146.30	74.44	50.15	-	-
	Duct-B		3.5mtrs	Batt. cyclone	17.01.18	-	360781	144.92	88.70	-	-	-
SM-2	Duct-A		3.5mtrs	Batt. cyclone	07.01.17	-	345299	146.72	86.56	42.15	-	-
	Duct-B		3.5mtrs	Batt. cyclone	07.01.17	-	367253	145.05	90.35	-	-	-
SM-3	Duct-A		3.5mtrs	Batt. cyclone	25.01.17	-	369216	141.38	80.49	38.76	-	-
	Duct-B		3.5mtrs	ESP-6	25.01.17		372365	55.27	62.14	-	-	-

Standard: PM - 150 , SO2 - , NOx - (Units: mg/Nm^3) * All three Sinter M/c Exhaust are connected to a common single stack of 100m height

FEB'2017

Name of the Plant	Stack connected to (Name of the unit)	Height of the stack (m)	Diameter of the stack (m)	Pollution Control unit provided (Name)	Date & Time of the monitoring (duration)	Production fig. of the unit, during the period of monitoring	Flow rate of the flue gas (NM^3/Hr)	Parameters (whichever are applicable)				
1	2	3	4	5	6	7	8	9				
Blast Furnace (Space dedusting) & Stoves								**Particulate matter (PM)** (mg/Nm^3)	**SO_2** (mg/Nm^3)	**NO_x** (mg/Nm^3)	**HC**	**CO** Kg/TDCP Vol./vol.
BF-1	Chimney-1	50 mtr.	8.2mtrs.	Wet scruber	Under Capital Repair							
BF-2	Chimney-2	50 mtr.	8.2mtrs.	Wet scruber					-	-	-	-
BF-3	Chimney-2	50 mtr.	8.2mtrs.	Wet scruber	09.02.17	7323 T	265332	80.54	-		-	-
BF-4	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber	20.02.17	2592 T	230785	52.16	-	-	-	-
BF-5	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber							-	-
BF Stoves-4	Chimney-4	70 mtr.	3.5mtrs.	-	28.02.17	3246 T	110252	29.85	40.15	26.52	-	0.61%
Standards : Charging side chimney- PM - 100 (Units: mg/Nm^3) **BF Stoves – PM- 50 mg/Nm3, SO2- 250 mg/Nm3, NOX- 150 mg/Nm3 CO- 1% v/v (Max)** • BF#1 is connected to chimney no-1 , BF#2&BF#3 are connected to chimney no-2 and BF#4&BF#5 are connected to chimney no-3 Each BF stove is connected to corresponding chimney No.												
Refractory Material plant												
Kiln-1	Stack – 1	80 mtr.	3.3mtrs	ESP's	22.02.17	10.83 T/hr	152720	141.21	108.50	-	-	-
Kiln-2	Stack – 1	80 mtr.	3.3mtrs	ESP's	-	-	-	-	-	-	-	-
Kiln-3	Stack – 2	80 mtr.	3.3mtrs	ESP's	18.02.17	11.25 T/hr	148709	142.74	128.97	-	-	-
Kiln-4	Stack – 2	80 mtr.	3.3mtrs	ESP;s	-	-	-	-	-		-	-
Kiln-5	Stack – 3	80 mtr.	3.3mtrs	ESP's	02.02.17	11.25 T/hr	143680	138.32	97.52	-	-	-
Kiln-6	Stack – 3	80 mtr.	3.3mtrs	ESP's	16.02.17	10.45 T/hr	147321	147.24	95.40	-	-	-

Standards: PM - 150 , SO2 - , NOx - , CO - (Units: mg/Nm^3)

Monitoring values for corresponding Kiln duct. Two Kilns through individual Ducts are connected to a common stack.

SMS – 1 (Process)					**Date**		**Flow rate (NM^3/Hr)**	**PM (mg/Nm^3)**	**SO_2 (mg/Nm^3)**	**NO_x (mg/Nm^3)**	HC	CO
Conv. – 1(BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber	13.02.17	-	234252	226.80	70.86	48.25	-	-
Conv. – 2 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber		Maximum metal was taken through SMS-2 route						-
Conv. – 3 (NB)	Stack – 1	100 m	4.3mtrs	Wet scrubber	17.02.17	-	105112	22.86	-	-	-	-
Conv. – 3(BL)	Stack – 1	100m	4.3mtrs	Wet scrubber	17.02.17	-	241520	240.52	68.72	49.32	-	-
Conv. –4 (NB)	Stack – 1	100 m	4.3mtrs	Wet scrubber	06.02.17		100721	23.69	-	-	-	-
Conv. – 4 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber	06.02.17		244709	219.80	77.93	52.69	-	-
Conv. – 5(BL)	Stack – 1	100m	4.3mtrs	Wet scrubber	Under Modernization						-	-
SMS-2/CCS	LF-1	80m	1.25m	Bag filter	24.02.17	-	108790	26.52	-	-	-	-

Standard : PM - 300, SO2 - , NOx - , CO - * Monitored in individual ducts(of dia 2.5 m each) from corresponding converters. SMS-2/CCS Stack -PM #50mg/Nm3
(Units: mg/Nm^3) All ducts are connected to a common stack

Coke Oven												
Batt. # 1	Stack – 1	100 m.	3.5mtrs	-	04.02.17	-	138722	26.52	232.16	48.52	-	1.85
Batt. # 2	Stack – 2	100 m.	3.5mtrs	-	10.02.17	-	140084	32.74	208.15	40.16	-	1.78
Batt # 3	Stack - 3	100 m	3.5 mtrs	-	25.02.17	-	142231	34.50	269.79	52.07	-	2.03
Batt. # 4	Stack – 4	100 m.	3.5 mtrs	-	14.02.17	-	145709	30.44	216.81	38.96	-	2.14
Batt. # 5	Stack – 5	100 m.	3.5mtrs	-	01.02.17	-	150821	48.74	238.03	48.48	-	2.25
Batt # 6	Stack - 6	100 m.	3.5 mts	-	21.02.17		141675	40.57	230.73	62.81	-	2.54
Batt. # 7	Stack – 7	100 m.	3.5mtrs	-Under Rebuilding								
Batt. # 8	Stack – 8	100 m.	3.5mtrs	Shut down for Rebuilding								

Standard: PM - 50, SO2 - 800, NOx - 500, CO – 3.00 Kg/TDCP, HC - (Units: mg/Nm^3)

Sinter Plant												
SM-1	Duct-A	100 m.*	3.5mtrs	Batt. cyclone	15.02.17	-	384256	140.72	90.18	42.17	-	-
	Duct-B		3.5mtrs	Batt. cyclone	15.02.17	-	382654	146.90	80.74	-	-	-
SM-2	Duct-A		3.5mtrs	Batt. cyclone	11.02.17	-	380695	142.01	86.21	38.72	-	-
	Duct-B		3.5mtrs	Batt. cyclone	11.02.17	-	379652	143.87	88.20	-	-	-
SM-3	Duct-A		3.5mtrs	Batt. cyclone	27.02.17	-	401234	146.48	70.21	50.52	-	-
	Duct-B		3.5mtrs	ESP-6	27.02.17		382573	56.35	64.54	-	-	-

Standard: PM - 150 , SO2 - , NOx - (Units: mg/Nm^3)
* All three Sinter M/c Exhaust are connected to a common single stack of 100m height

Mar'2017

Name of the Plant	Stack connected to (Name of the unit)	Height of the stack (m)	Diameter of the stack (m)	Pollution Control unit provided (Name)	Date & Time of the monitoring (duration)	Production fig. of the unit, during the period of monitoring	Flow rate of the flue gas (NM^3/Hr)	Parameters (whichever are applicable)				
1	2	3	4	5	6	7	8	9				
Blast Furnace (Space dedusting) & Stoves								**Particulate matter (PM)** (mg/Nm^3)	**SO_2** (mg/Nm^3)	**NO_x** (mg/Nm^3)	**HC**	**CO** Kg/TDCP Vol./vol.
BF-1	Chimney-1	50 mtr.	8.2mtrs.	Wet scruber	Under Capital Repair							
BF-2	Chimney-2	50 mtr.	8.2mtrs.	Wet scruber					-	-	-	-
BF-3	Chimney-2	50 mtr.	8.2mtrs.	Wet scruber	13.03.17	7225 T	270515	78.85	-		-	-
BF-4	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber	17.03.17	3151 T	257853	60.21	-	-	-	-
BF-5	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber							-	-
BF Stoves-2	Chimney-2	70 mtr.	3.5mtrs.	-	25.03.17	4450 T	109652	29.94	34.86	27.38	-	0.62%
Standards : Charging side chimney- PM - 100 (Units: mg/Nm^3) **BF Stoves – PM- 50 mg/Nm3, SO2- 250 mg/Nm3, NOX- 150 mg/Nm3 CO- 1% v/v (Max)** • BF#1 is connected to chimney no-1 , BF#2&BF#3 are connected to chimney no-2 and BF#4&BF#5 are connected to chimney no-3 Each BF stove is connected to corresponding chimney No.												
Refractory Material plant												
Kiln-1	Stack – 1	80 mtr.	3.3mtrs	ESP's	04.03.17	10.69 T/hr	149532	144.72	79.68	-	-	-
Kiln-2	Stack – 1	80 mtr.	3.3mtrs	ESP's	-	-	-	-	-	-	-	-
Kiln-3	Stack – 2	80 mtr.	3.3mtrs	ESP's	21.03.17	11.25 T/hr	151774	147.56	82.24	-	-	-
Kiln-4	Stack – 2	80 mtr.	3.3mtrs	ESP;s	24.03.17	10.42 T/hr	150864	146.46	97.20		-	-
Kiln-5	Stack – 3	80 mtr.	3.3mtrs	ESP's	07.03.17	11.09 T/hr	148729	141.35	68.23	-	-	-
Kiln-6	Stack – 3	80 mtr.	3.3mtrs	ESP's	-	-	-	-	-	-	-	-

Standards: PM - 150 , SO2 - , NOx - , CO - (Units: mg/Nm^3)

Monitoring values for corresponding Kiln duct. Two Kilns through individual Ducts are connected to a common stack.

SMS – 1 (Process)					**Date**		**Flow rate (NM^3/Hr)**	**PM (mg/Nm^3)**	**SO_2 (mg/Nm^3)**	**NO_x (mg/Nm^3)**	HC	CO
Conv. – 1(BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber	18.03.17	-	259843	199.87	80.15	25.10	-	-
Conv. – 2 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber	Capital Repair							-
Conv. – 3 (NB)	Stack – 1	100 m	4.3mtrs	Wet scrubber	28.03.17	-	105729	23.15	-	-	-	-
Conv. – 3(BL)	Stack – 1	100m	4.3mtrs	Wet scrubber	28.03.17	-	263092	241.97	90.54	36.72	-	-
Conv. –4 (NB)	Stack – 1	100 m	4.3mtrs	Wet scrubber	20.03.17		102725	30.52	-	-	-	-
Conv. – 4 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber	20.03.17		260328	245.14	75.80	40.16	-	-
Conv. – 5(BL)	Stack – 1	100m	4.3mtrs	Wet scrubber	Under Modernization						-	-
SMS-2/CCS	LF-2	80m	1.25m	Bag filter	31.03.17	-	107635	30.16	-	-	-	-

Standard : PM - 300, SO2 - , NOx - , CO - * Monitored in individual ducts(of dia 2.5 m each) from corresponding converters. SMS-2/CCS Stack -PM #50mg/Nm3
(Units: mg/Nm^3) All ducts are connected to a common stack

Coke Oven												
Batt. # 1	Stack – 1	100 m.	3.5mtrs	-	23.03.17	-	149367	32.79	215.65	54.25	-	1.85
Batt. # 2	Stack – 2	100 m.	3.5mtrs	-	06.03.17	-	139725	28.52	205.78	40.96	-	1.92
Batt # 3	Stack - 3	100 m	3.5 mtrs	-	16.03.17	-	140312	30.45	216.05	38.97	-	2.08
Batt. # 4	Stack – 4	100 m.	3.5 mtrs	-	27.03.17	-	143621	40.57	220.15	50.55	-	2.09
Batt. # 5	Stack – 5	100 m.	3.5mtrs	-	02.03.17	-	144982	45.58	194.77	61.41	-	2.58
Batt # 6	Stack - 6	100 m.	3.5 mts	-	11.03.17		147178	39.28	228.78	70.32	-	2.42
Batt. # 7	Stack – 7	100 m.	3.5mtrs	-Under Rebuilding								
Batt. # 8	Stack – 8	100 m.	3.5mtrs	Shut down for Rebuilding								

Standard: PM - 50, SO2 - 800, NOx - 500, CO – 3.00 Kg/TDCP, HC - (Units: mg/Nm^3)

Sinter Plant												
SM-1	Duct-A	100 m.*	3.5mtrs	Batt. cyclone	07.03.17	-	382546	142.57	101.97	52.16	-	-
	Duct-B		3.5mtrs	Batt. cyclone	07.03.17	-	283519	143.05	89.05	-	-	-
SM-2	Duct-A		3.5mtrs	Batt. cyclone	15.03.17	-	379258	145.96	99.66	50.52	-	-
	Duct-B		3.5mtrs	Batt. cyclone	15.03.17	-	378920	144.05	92.15	-	-	-
SM-3	Duct-A		3.5mtrs	Batt. cyclone	30.03.17	-	360774	145.05	97.15	46.15	-	-
	Duct-B		3.5mtrs	ESP-6	30.03.17		356980	67.15	94.35	-	-	-

Standard: PM - 150 , SO2 - , NOx - (Units: mg/Nm^3) * All three Sinter M/c Exhaust are connected to a common single stack of 100m height

AMBIENT AIR QUALITY EMISSIONS

Standards : PM_{10} - 100, $PM_{2.5}$ -60, SO_2 - 80, NO_2 – 80, NH_3 - 400 , O_3-100, Pb -1.0 , C_6H_6 – 5.0 , (Units: micro gram/meter^3) As - 6.0,B(a)P - 1.0 , Ni – 20.0 (units – Nano gram/meter^3) , CO – 2.0 mg/m^3

OCT'2016

S. N.	Location of the Station	Date	Parameters (as applicable)											
			PM_{10}	$PM_{2.5}$	SO_2	NO_2	NH_3	O_3	Pb	C_6H_6	As	BaP	Ni	CO
1	B.S. City Rly. Stn.	04.10.16	98	46	25	20	72.4	88	0.18	3.68	0.49	0.21	0.30	0.74
2	Garga Dam	04.10.16	71	34	36	21	49.5	48	0.20	2.50	0.32	0.22	12.4	1.29
3	Sector-12	04.10.16	92	31	22	15	59.5	41	0.15	2.55	0.41	0.20	5.10	0.78
4	Sector-9	05.10.16	79	36	24	16	63.5	48.6	0.24	3.14	0.30	0.20	6.10	0.86
5	Bokaro Nivas	05.10.16	74	35	28	18	45.2	43.6	0.09	2.60	0.31	0.18	4.30	1.25
6	CISF (SGP)	05.10.16	75	41	29	19	52.2	58.4	0.17	2.84	0.33	0.19	11.6	1.23
7	Air Strip	04.10.16	64	36	25	23	29.7	41.4	0.17	3.40	0.29	0.21	0.33	0.81
8	CAAQMS at Main gate	17.10.16	83	24	17.5	11.5	4.6	26.1	-	0.8	-	-	-	1.2
9	CAAQMS at TA building	29.10.16	92	40	24.24	48.96	14.08	31.5	-	3.2	-	-	-	1.44

NOV'2016

S. No	Location of the Station	Date	Parameters (as applicable)											
			PM_{10}	$PM_{2.5}$	SO_2	NO_2	NH_3	O_3	Pb	C_6H_6	As	BaP	Ni	CO
1	B.S. City Rly. Stn.	21.11.16	86	58	15	68	126	91	0.037	3.85	1.6	0.24	4	1.51
2	Garga Dam	21.11.16	79	48	31	19	105	79	0.051	2.23	2.0	0.16	6	1.83
3	Sector-12	22.11.16	83	53	41	26	108	35	0.042	3.34	1.7	0.12	8	1.42
4	Sector-9	23.11.16	94	42	11	60	117	82	0.048	3.02	2.1	0.15	6	1.31
5	Bokaro Nivas	23.11.16	88	52	14	31	98	77	0.108	3.13	1.6	0.16	3	1.45
6	CISF (SGP)	24.11.16	94	53	17	19	101	80	0.032	3.04	1.5	0.22	4	1.19
7	Air Strip	22.11.16	95	56	30	53	122	87	0.045	3.66	1.1	0.20	7	1.58
8	CAAQMS at Main gate	06.11.16	85	32.2	17.8	10.9	4.1	39.2	-	1.00	-	-	-	1.10
9	CAAQMS at TA building	21.11.16	97	10.6	27.32	90.52	12.12	42.55	-	3.20	-	-	-	1.18

DEC'2016

S. No	Location of the Station	Date	Parameters (as applicable)											
			PM_{10}	$PM_{2.5}$	SO_2	NO_2	NH_3	O_3	Pb	C_6H_6	As	B(a)P	Ni	CO
1	B.S. City Rly. Stn.	12.12.16	95	53	16	31	20.6	77.9	0.044	4.36	2.22	0.22	6.0	1.29
2	Garga Dam	12.12.16	88	50	11	14	11.8	73.5	0.090	1.92	1.6	0.16	9.9	1.39
3	Sector-12	13.12.16	96	40	35	62	12.4	72.1	0.125	2.94	3.3	0.09	19.3	1.07
4	Sector-9	13.12.16	96	58	33	34	14.7	65.6	0.084	2.90	0.80	0.12	14.9	1.35
5	Bokaro Nivas	13.12.16	85	51	31	35	9.6	67.4	0.101	3.56	1.10	0.08	10.3	1.61
6	CISF (SGP)	14.12.16	97	58	21	37	9.1	81.7	0.028	1.84	2.4	0.21	13.1	1.35
7	Air Strip	12.12.16	90	55	47	46	9.2	67.4	0.121	3.92	1.5	0.14	13.8	1.45
8	CAAQMS at Main gate	07.12.16	98	46.4	16.4	12.1	4.1	25.8	-	1.00	-	-	-	1.2
9	CAAQMS at TA building	21.12.16	92	53	51.2	53.3	19.16	56.28	-	1.22	-	-	-	1.77

JAN'2017

S. No	Location of the Station	Date	Parameters (as applicable)											
			PM_{10}	$PM_{2.5}$	SO_2	NO_2	NH_3	O_3	Pb	C_6H_6	As	B(a)P	Ni	CO
1	B.S. City Rly. Stn.	19.01.17	78	48	17	24	34	78	0.081	3.94	0.58	0.24	7.6	1.54
2	Garga Dam	19.01.17	75	44	35	19	28	87	0.080	2.62	0.60	0.20	4.4	1.49
3	Sector-12	20.01.17	69	41	20	31	12	48	0.198	2.67	0.65	0.14	4.1	1.59
4	Sector-9	21.01.17	84	49	16	27	20	59	0.128	2.77	0.042	0.10	4.3	1.33
5	Bokaro Nivas	21.01.17	72	54	32	19	74	76	0.092	3.11	0.38	0.08	11.4	1.60
6	CISF (SGP)	22.01.17	89	48	35	21	62	92	0.094	2.02	0.56	0.24	11.3	1.46
7	Air Strip	20.01.17	72	51	56	48	33	71	0.104	3.07	0.40	0.13	7.3	1.49
8	CAAQMS at Main gate	14.01.17	94.5	45	16.1	12.6	4.5	23.8	-	1.00	-	-	-	1.10
9	CAAQMS at TA building	21.01.17	97	58	56.9	29.9	8.1	97.0	-	2.25	-	-	-	1.37

FEB'2017

S. No	Location of the Station	Date	Parameters (as applicable)											
			PM_{10}	$PM_{2.5}$	SO_2	NO_2	NH_3	O_3	Pb	C_6H_6	As	B(a)P	Ni	CO
1	B.S. City Rly. Stn.	15.02.17	121	66	17	22	85	57	0.040	2.65	0.51	0.21	2.2	1.130
2	Garga Dam	15.02.17	85	48	52	19	69	29	0.045	2.05	0.42	0.12	0.8	1.400
3	Sector-12	16.02.17	92	54	30	21	13	62	0.032	2.82	0.62	0.11	4.6	1.020
4	Sector-9	16.02.17	89	56	46	34	28	49	0.046	4.50	0.68	0.29	5.5	1.410
5	Bokaro Nivas	18.02.17	91	52	78	39	62	68	0.051	3.11	0.55	0.15	4.9	1.490
6	CISF (SGP)	17.02.17	89	57	63	18	83	64	0.055	4.26	0.54	0.23	6.5	1.210
7	Air Strip	18.02.17	96	56	65	76	74	52	0.062	4.35	0.48	0.14	6.2	1.170
8	CAAQMS at Main gate	11.02.17	89.6	42.1	17.5	12.3	4.2	31.5	-	0.7	-	-	-	1.200
9	CAAQMS at TA building	24.02.17	58.69	36.04	25.6	27.68	9.47	18.54	-	2.25	-	-	-	1.820

MAR'2017

S. No	Location of the Station	Date	Parameters (as applicable)											
			PM_{10}	$PM_{2.5}$	SO_2	NO_2	NH_3	O_3	Pb	C_6H_6	As	B(a)P	Ni	CO
1	B.S. City Rly. Stn.	27.03.17	93	55	39	38	32	42	0.032	2.89	1.02	0.20	2.16	1.35
2	Garga Dam	27.03.17	91	50	16	30	46	52	0.018	0.63	0.58	0.10	0.69	0.98
3	Sector-12	27.03.17	90	54	17	48	36	29	0.026	1.23	0.82	0.12	1.10	1.12
4	Sector-9	28.03.17	89	49	25	44	29	52	0.024	1.02	0.92	0.11	1.69	1.24
5	Bokaro Nivas	28.03.17	86	54	30	43	25	35	0.057	0.82	1.06	0.09	1.82	0.86
6	CISF (SGP)	29.03.17	94	56	42	49	32	42	0.026	0.38	0.58	0.21	1.61	1.38
7	Air Strip	29.03.17	92	58	25	40	6.5	35	0.045	0.67	0.52	0.10	1.34	1.06
8	CAAQMS at Main gate	05.03.17	98.6	40.0	20.2	11.9	4.2	34.7	-	0.7	-	-	-	1.00
9	CAAQMS at TA building	10.03.17	69.81	55.58	66.67	29.2	13.41	83.3	-	2.25	-	-	-	1.39

WATER POLLUTION STATUS

Water consumption / tonne of Steel produced: 4.51 m^3/tcs
Effluent discharged to : (Name of the river / drain / land etc.): Damodar River
Quality of various effluent streams at the Boundary line of the plant

S14tandards : Temp.- Upto 40^{0}C, pH -6.0-8.50, TSS- 100, Phenol- 1.0, Cyanide- 0.20, BOD- 30, COD- 250, Amm. Nitrogen- 50, O&G- 10.0

Note:- Outfall-1 (COBPP, Sinter Plant, TPP, BF, RMP), Outfall-2:(SMS-1, SMS-2 &CCS, Rolling Mills)
Outfall-3; Due to huge excavation work in new CRM-3 area, this outfall cease to exist.

OCT'2016

Date of Monitoring	Name of the stream	Parameters (mg/l, except pH and temp.)									Flow rate m3/hr
		Temp. ^{0}C	pH	TSS	Phenol	Cyanide	BOD	COD	Amm. Nitrogen	O&G	
22.10.16	OF - 1	27.8	7.84	26	0.015	0.019	9.36	75	4.35	0.68	400
	OF – 2	27.4	7.33	21	0.013	0.006	6.25	47	1.09	0.38	350
	OF - 3	Abandoned									

NOV'2016

Date of Monitoring	Name of the stream	Parameters (mg/l, except pH and temp.)									Flow rate m3/hr
		Temp. ^{0}C	pH	TSS	Phenol	Cyanide	BOD	COD	Amm. Nitrogen	O&G	
18.11.16	OF - 1	24.8	6.92	25	0.022	0.008	12.75	69	1.32	1.05	400
	OF – 2	25.3	6.99	23	0.014	0.009	7.25	42	1.92	0.32	350
	OF - 3	Abandoned									

DEC'2016

Date of Monitoring	Name of the stream	Parameters (mg/l, except pH and temp.)									Flow rate m3/hr
		Temp. ^{0}C	pH	TSS	Phenol	Cyanide	BOD	COD	Amm. Nitrogen	O&G	
20.12.16	OF - 1	22.1	7.48	26	0.018	0.029	11.9	78	1.49	0.38	300
	OF – 2	23.1	7.53	19	0.011	0.007	07.6	48	0.62	0.62	250
	OF - 3	Abandoned									

JAN'2017

Date of Monitoring	Name of the stream	Parameters (mg/l, except pH and temp.)									Flow rate m3/hr
		Temp. ^{0}C	pH	TSS	Phenol	Cyanide	BOD	COD	Amm. Nitrogen	O&G	
03.01.17	OF - 1	22.8	6.95	34	0.014	0.024	14.2	96	1.38	0.42	300
	OF – 2	25.1	7.44	28	0.009	0.010	9.52	46	1.54	0.38	250
	OF - 3	Abandoned									

FEB'2017

Date of Monitoring	Name of the stream	Parameters (mg/l, except pH and temp.)									Flow rate m3/hr
		Temp. ^{0}C	pH	TSS	Phenol	Cyanide	BOD	COD	Amm. Nitrogen	O&G	
14.02.17	OF - 1	26.3	7.95	32	0.012	0.018	7.55	86	1.48	0.46	300
	OF – 2	26.8	7.34	26	0.008	0.012	7.60	70	0.56	0.40	250
	OF - 3	Abandoned									

MAR'2017

Date of Monitoring	Name of the stream	Parameters (mg/l, except pH and temp.)									Flow rate m3/hr
		Temp. ^{0}C	pH	TSS	Phenol	Cyanide	BOD	COD	Amm. Nitrogen	O&G	
07.03.17	OF - 1	27.8	7.09	29	0.114	0.027	11.32	78	1.24	0.65	300
	OF – 2	27.3	7.89	23	0.026	0.016	7.55	42	1.38	0.48	250
	OF - 3	Abandoned									

STATUS OF SEWAGE TREATMENT PLANT (STP)

Standards : Temp.- Upto 40^{0}C, pH -6.0-8.5, TSS- 30, Phenol- 1.0, Cyanide- 0.20, BOD- 20, COD- 250.

OCT'2016

Date	Time of Monitoring	Name of the STP	Quantity of the Effluent	**Temp. ^{0}C**	**pH**	**TSS**	**BOD**	**COD**	**Remarks**
20.10.16	12.20 pm	BGH	-	26.2	7.43	16	10.44	71	
	11.30 am	Dhandabra	-	25.9	7.29	17	11.82	76	
	11.00 am	Sector -6	-	25.4	7.34	15	10.66	68	
	10.35 am	Camp-2	-	26.1	7.50	17	14.84	98	
	10.15 am	Sector-12	-	25.5	7.08	14	11.56	72	

NOV'2016

Date	Time of Monitoring	Name of the STP	Quantity of the Effluent	**Temp. ^{0}C**	**pH**	**TSS**	**BOD**	**COD**	**Remarks**
08.11.16	12.20 pm	BGH	-	26.1	7.23	19	12.20	52	
	11.30 am	Dhandabra	-	25.5	6.94	20	13.12	72	
	11.00 am	Sector -6	-	26.4	7.48	18	12.34	42	
	10.35 am	Camp-2	-	26.2	7.02	21	14.25	92	
	10.15 am	Sector-12	-	25.7	7.12	16	14.21	68	

DEC'2016

Date	Time of Monitoring	Name of the STP	Quantity of the Effluent	**Temp. ^{0}C**	**pH**	**TSS**	**BOD**	**COD**	**Remarks**
10.12.16	12.20 pm	BGH	-	23.6	6.94	13	10.8	62	
	11.30 am	Dhandabra	-	22.9	7.06	15	10.2	68	
	11.00 am	Sector -6	-	22.1	7.18	18	12.2	50	
	10.35 am	Camp-2	-	23.0	6.79	19	14.6	62	
	10.15 am	Sector-12	-	23.6	7.36	15	11.2	50	

JAN'2017

Date	Time of Monitoring	Name of the STP	Quantity of the Effluent	**Temp. ^{0}C**	**pH**	**TSS**	**BOD**	**COD**	**Remarks**
21.01.17	12.20 pm	BGH	-	20.7	7.66	18	10.15	72	
	11.30 am	Dhandabra	-	19.9	7.44	16	11.32	78	
	11.00 am	Sector -6	-	20.4	7.62	15	10.52	52	
	10.35 am	Camp-2	-	20.1	7.50	14	15.52	74	
	10.15 am	Sector-12	-	19.4	7.15	17	10.50	62	

FEB'2017

Date	Time of Monitoring	Name of the STP	Quantity of the Effluent	**Temp. ^{0}C**	**pH**	**TSS**	**BOD**	**COD**	**Remarks**
07.02.17	12.20 pm	BGH	-	26.1	8.02	18	10.6	72	
	11.30 am	Dhandabra	-	22.1	7.38	16	12.8	66	
	11.00 am	Sector -6	-	21.9	6.74	17	11.5	67	
	10.35 am	Camp-2	-	22.6	7.12	19	12.4	70	
	10.15 am	Sector-12	-	21.3	7.32	16	10.9	65	

MAR'2017

Date	Time of Monitoring	Name of the STP	Quantity of the Effluent	**Temp. ^{0}C**	**pH**	**TSS**	**BOD**	**COD**	**Remarks**
17.03.17	12.20 pm	BGH	-	26.6	7.11	12	10.3	70	
	11.30 am	Dhandabra	-	24.5	7.45	14	11.5	65	
	11.00 am	Sector -6	-	26.3	7.22	18	9.5	72	
	10.35 am	Camp-2	-	26.4	7.24	15	14.5	89	
	10.15 am	Sector-12	-	26.7	7.25	13	10.2	49	