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 April'2016 to September'2016.

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:

Online Stack Monitoring system has been installed in eight stacks of Bokaro Steel Plant. Six stacks of Coke oven battery and one each in ESP-6 & RMP Kiln-5. Four stacks of Coke oven battery have been uplinked to CPCB & JSPCB server. The Work has been started for installation of on-line stack monitoring system in Nineteen Stacks of BSL. Simultaneously its real time data will be uplinked to CPCB & JSPCB server. Emission level in all six working Coke oven Batteries are within stipulated norm of 50 mg/Nm3. SAIL/ Bokaro Steel is going for Refurbishing of all ESPs of RMP Kilns. This project is under stage#2 approval. Online Stack Monitoring system will be installed along with the revamping of the ESPs of RMP Kilns. Replacement of multi-cyclones in Sinter M/C by ESP's is under process. Battery cyclone # 6 has been successfully replaced by ESP # 6.

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 norm.
- 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. No quantity of gas is being flared.
- Rebuilding of Battery #7 has been started. Expected to be commissioned by March'2017.
- Batt#3 & Batt#4 have been commissioned after cold repair.
- Batt#8 has been taken under shut down for its rebuilding. The dismantling work has been completed. Construction of quenching tower is in progress.
- Dry Fog dust suppression system has been installed in Coal Handling & Coke Sorting Plant of Coke ovens.
- The Work has been started for installation of on-line stack monitoring system in all coke oven Stacks of BSL.

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 its report is sent to CPCB every month. BSL is going for the installation of ESP based area de-dusting system Sinter Plant Machine floor for further reduction of fugitive emission.

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.

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:

Presently the same quantity of water is being drawn from Tenughat as during 4.0MT Crude steel stage. After commissioning of all projects under modified Environment clearance some more quantity of water may be needed but that will be well within 3600m3/hr. The work has been started for complete treatment and recycling work of OF-1 & OF-2 effluent. The project is expected to be completed by December'2017.

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. SAIL/BSL is going for zero discharge from plant getting discharged from OF-1 & OF-2 . The work for 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 March'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 April'2016 to September'2016 the BF Slag utilization including land filling was around 99.94%. After the commissioning of all CHSGP'S in BSL 100% BF Slag granulation would be achieved. Total BF slag granulated is being used for cement making in Dalmia Cement plant. As far as SMS slag is concerned its utilization in the period from April'2016 to September'2016 was 93.18% 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 2015-16 was 97.29% 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:

A MOU has been signed between M/s BPSCL & M/s Dilip Buildcom for NHAI for use of one lakh ton of fly ash for road making from Bokaro Steel city to Ramgarh. 30000Tons has already been transported.

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 (4243452) Forty two lakh forty three thousand four hundred fifty two trees in and outside Bokaro Steel Plant. During 2016-17 20700 saplings have been planted. 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. Cold repair of Batt#3 and Hot repair of Batt#6 have been completed. Rebuilding of Batt #7 has been started. It is expected to be commissioned by March. Coke oven Batt#8 has also been taken under shut down for rebuilding. Battery rebuilding at Bokaro is ahead of CREP schedule.
c. Fugitive emission in SMS of BSL are within norm.
d. LD slag utilization in the stipulated period was more than 93.18%
e. BF slag utilization is around 99.94% (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 is 4.20 m^3/tcs which is below CREP norm.

h. Phenol & ammonia content in BOD Plant effluent is below stipulated norm.
All pollution control equipment are being monitored closely and compliance quarterly reports 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 has 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 is 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 .
- 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. It is under stage-2 approval.
- 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 March'2017.
- Zero discharge of plant effluent as well as sewage effluent is to be maintained.
- 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. This environmental compliance report is pertaining to that Environmental Clearance. 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 report is sent regularly to CPCB & JSPCB.

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. It is monitored regularly for PM_{10}, $PM_{2.5}$, SO_2, NO_2, O_3, NH_3, B(a)P,CO, Pb , As &Ni since March'2014. This report is being sent to CPCB every month. Ambient Air Quality monitoring report of stipulated period has been enclosed. Two No. of Continuous Ambient Air Quality Station has been installed & uplinked to CPCB & JSPCB server.

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. Its report is also regularly sent to CPCB every month. Water is regularly sprinkled to suppress fugitive emission at different dusty areas including coal stock piles. Dry fog dust suppression system has been

commissioned 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'2017. The project division has been instructed for the inclusion of Rain Water Harvesting facility in all new upcoming building & structures.

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:

BSL is committed to send six monthly compliance reports 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:

Project Deptt. had informed the public by giving advertisement in two local daily 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

APR'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	11.04.16	6538 T	267325	75.05	-	-	-	-
BF-3	Chimney-2	50 mtr.	8.2mtrs.	Wet scruber					-	-	-	-
BF-4	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber	-	-	-	-	-	-	-	-
BF-5	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber	04.04.16	3056 T	260732	60.12			-	-
BF Stoves-2	Chimney-2	70 mtr.	3.5mtrs.	-	25.04.16	3505 T	115505	27.34	34.86	29.92	-	0.65%
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)**												
Refractory Material plant												
Kiln-1	Stack – 1	80 mtr.	3.3mtrs	ESP's	30.04.16	11.40 T/hr	158315	147.82	112.05	-	-	-
Kiln-2	Stack – 1	80 mtr.	3.3mtrs	ESP's	08.04.16	11.14 T/hr	155630	146.92	109.31	-	-	-
Kiln-3	Stack – 2	80 mtr.	3.3mtrs	ESP's	27.04.16	10.83 T/hr	157321	144.67	95.86	-	-	-
Kiln-4	Stack – 2	80 mtr.	3.3mtrs	ESP;s	16.04.16	11.25 T/hr	148615	149.05	108.06	--	-	-
Kiln-5	Stack – 3	80 mtr.	3.3mtrs	ESP's	13.04.16	11.04 T/hr	156336	142.86	90.74	-	-	-
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.

- 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.

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 scruber	23.04.16		111536	21.66	-	-	-	-
Conv. – 1 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	23.04.16		245403	201.60	125.70	48.28	-	-
Conv. – 2 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	-	-	-	-	-	-	-	-
Conv. – 3(BL)	Stack – 1	100m	4.3mtrs	Wet scruber	19.04.16		250771	228.16	109.92	55.81	-	-
Conv. – 4 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	05.04.16		249309	218.03	115.32	40.82	-	-
Conv. – 4 (NB)	Stack – 1	100 m	4.3mtrs	Wet scruber	-	-	-	-	-	-	-	-
Conv. – 5(BL)	Stack – 1	100m	4.3mtrs	Wet scruber	Under Modernization						-	-
SMS-2/CCS	LF-1	80m	1.25m	Bag filter	29.06.16		105779	26.52	-	-	-	-

Standards : 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	-	01.04.16		147553	35.98	309.25	65.36	-	1.41
Batt. # 2	Stack – 2	100 m.	3.5mtrs	-	26.04.16		140715	29.60	246.52	58.39	-	1.32
Batt # 3	Stack - 3	100 m	3.5 mtrs	-	20.04.16		138007	34.87	262.02	61.35	-	2.16
Batt. # 4	Stack – 4	100 m.	3.5 mtrs	-	02.04.16		144733	38.81	212.80	40.59	-	2.32
Batt. # 5	Stack – 5	100 m.	3.5mtrs	-	07.04.16		141355	41.54	239.02	49.68	-	2.58
Batt # 6	Stack - 6	100 m.	3.5 mts	-	14.04.16		144126	47.62	215.69	50.12	-	2.56
Batt. # 7	Stack – 7	100 m.	3.5mtrs	Under Rebuilding								
Batt. # 8	Stack – 8	100 m.	3.5mtrs	Shut down for Rebuilding								

Standards : 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	22.04.16		405779	145.26	92.64	50.85	-	-
	Duct-B		3.5mtrs	Batt. cyclone	22.04.16		408317	144.67	-	-	-	-
SM-2	Duct-A		3.5mtrs	Batt. cyclone	09.04.16		412365	148.72	93.53	40.05	-	-
	Duct-B		3.5mtrs	Batt. cyclone	09.04.16		409787	147.92	-	-	-	-
SM-3	Duct-A		3.5mtrs	Batt. cyclone	12.04.16		400271	149.71	95.86	46.55	-	-
	Duct-B		3.5mtrs	ESP-6	12.04.16		299766	42.81	-	-	-	-

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

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

MAY'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					-	-	-	-
BF-3	Chimney-2	50 mtr.	8.2mtrs.	Wet scruber	19.05.16	6310 T	270162	70.96	-	-	-	-
BF-4	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber	-	-	-	-	-	-	-	-
BF-5	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber	30.05.16	3058 T	244162	56.11				
BF Stoves-3	Chimney-3	70 mtr.	3.5mtrs.	-	24.05.16	3109 T	105621	34.55	95.15	40.62	-	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)**												
Refractory Material plant												
Kiln-1	Stack – 1	80 mtr.	3.3mtrs	ESP's	03.05.16	10.00 T/hr	150621	148.92	86.68	-	-	-
Kiln-2	Stack – 1	80 mtr.	3.3mtrs	ESP's	26.05.16	10.43 T/hr	148705	147.04	110.20	-	-	-
Kiln-3	Stack – 2	80 mtr.	3.3mtrs	ESP's	09.05.16	11.25 T/hr	155620	146.51	117.11	-	-	-
Kiln-4	Stack – 2	80 mtr.	3.3mtrs	ESP;s	13.05.16	11.25 T/hr	154316	148.72	98.32	--	-	-
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.

- 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.

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 scruber	-	-	-	-	-	-	-	-
Conv. – 1 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	-	-	-	-	-	-	-	-
Conv. – 2 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	10.05.16	-	244715	241.62	87.35	36.92	-	-
Conv. – 3(BL)	Stack – 1	100m	4.3mtrs	Wet scruber	14.05.16	-	239255	273.67	130.57	40.15	-	-
Conv. – 3 (NB)	Stack – 1	100 m	4.3mtrs	Wet scruber	14.05.16	-	104782	023.17	-	-	-	-
Conv. – 4 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	23.05.16	-	230415	211.17	70.82	32.16	-	-
Conv. – 5(BL)	Stack – 1	100m	4.3mtrs	Wet scruber	Under Modernization						-	-
SMS-2/CCS	LF-2	80m	1.25m	Bag filter	27.05.16	-	99625	31.71	-	-	-	-

Standards : 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	-	12.05.16	-	144616	29.53	217.29	49.46	-	1.51
Batt. # 2	Stack – 2	100 m.	3.5mtrs	-	16.05.16	-	134494	41.56	232.77	36.11	-	1.48
Batt # 3	Stack - 3	100 m	3.5 mtrs	-	02.05.16	-	132162	43.14	198.80	47.16	-	1.40
Batt. # 4	Stack – 4	100 m.	3.5 mtrs	-	18.05.16	-	140712	25.11	192.96	50.12	-	1.47
Batt. # 5	Stack – 5	100 m.	3.5mtrs	-	25.05.16	-	133723	48.59	207.84	49.83	-	1.60
Batt # 6	Stack - 6	100 m.	3.5 mts	-	11.05.16		147576	41.57	196.23	47.23		1.55
Batt. # 7	Stack – 7	100 m.	3.5mtrs	Under Rebuilding								
Batt. # 8	Stack – 8	100 m.	3.5mtrs	Shut down for Rebuilding								

Standards : 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	28.05.16	-	408125	146.22	80.52	26.52	-	-
	Duct-B		3.5mtrs	Batt. cyclone	28.05.16	-	407775	145.30	-	-	-	-
SM-2	Duct-A		3.5mtrs	Batt. cyclone	21.05.16	-	419876	146.25	109.35	36.25	-	-
	Duct-B		3.5mtrs	Batt. cyclone	21.05.16	-	409715	145.72	-	-	-	-
SM-3	Duct-A		3.5mtrs	Batt. cyclone	05.05.16	-	410788	148.96	148.07	17.82	-	-
	Duct-B		3.5mtrs	ESP-6	17.05.16	-	298775	76.00	63.00	29.00	-	-

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

JUNE'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	11.06.16	6664 T	269625	73.72	-	-	-	-
BF-3	Chimney-2	50 mtr.	8.2mtrs.	Wet scruber					-	-	-	-
BF-4	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber	-	-	-	-	-	-	-	-
BF-5	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber	03.06.16	2680 T	241621	67.25	-			
BF Stoves-5	Chimney-5	70 mtr.	3.5mtrs.	-	30.06.16	3070 T	101507	27.52	34.58	36.74	-	0.55%
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)**												
Refractory Material plant												
Kiln-1	Stack – 1	80 mtr.	3.3mtrs	ESP's	23.06.16	10.79 T/hr	157630	147.80	85.34	-	-	-
Kiln-2	Stack – 1	80 mtr.	3.3mtrs	ESP's	02.06.16	10.00 T/hr	149623	143.57	76.35	-	-	-
Kiln-3	Stack – 2	80 mtr.	3.3mtrs	ESP's	09.06.16	11.25 T/hr	154365	145.93	82.45	-	-	-
Kiln-4	Stack – 2	80 mtr.	3.3mtrs	ESP;s	10.06.16	11.25 T/hr	152609	149.00	79.46	--	-	-
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.

- 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.

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 scruber	04.06.16	-	116875	18.079	-	-	-	-
Conv. – 1 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	04.06.16	-	240157	240.16	90.34	38.60	-	-
Conv. – 2 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	-	-	-	-	-	-	-	-
Conv. – 3(BL)	Stack – 1	100m	4.3mtrs	Wet scruber	-	-	-	-	-	-	-	-
Conv. – 3 (NB)	Stack – 1	100 m	4.3mtrs	Wet scruber	-	-	-	-	-	-	-	-
Conv. – 4 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	22.06.16	-	252684	198.70	96.72	36.92	-	-
Conv. – 5(BL)	Stack – 1	100m	4.3mtrs	Wet scruber	Under Modernization						-	-
SMS-2/CCS	LF-1	80m	1.25m	Bag filter	17.06.16	-	112630	23.36	-	-	-	-

Standards : 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	-	01.01.16	-	136729	32.47	119.03	35.81	-	1.34
Batt. # 2	Stack – 2	100 m.	3.5mtrs	-	06.06.16	-	140080	38.62	223.38	40.70	-	1.50
Batt # 3	Stack - 3	100 m	3.5 mtrs	-	15.06.16	-	138275	29.21	210.16	45.35	-	2.45
Batt. # 4	Stack – 4	100 m.	3.5 mtrs	-	20.06.16	-	142835	38.70	190.85	35.09	-	2.06
Batt. # 5	Stack – 5	100 m.	3.5mtrs	-	08.06.16	-	140739	41.14	292.65	46.11	-	2.78
Batt # 6	Stack - 6	100 m.	3.5 mts	-	27.06.16		141695	45.91	217.05	48.63	-	2.65
Batt. # 7	Stack – 7	100 m.	3.5mtrs	Under Rebuilding								
Batt. # 8	Stack – 8	100 m.	3.5mtrs	Shut down for Rebuilding								

Standards : 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	25.06.16	-	404661	146.92	130.73	30.97	-	-
	Duct-B		3.5mtrs	Batt. cyclone	25.06.16	-	401729	145.60	-	-	-	-
SM-2	Duct-A		3.5mtrs	Batt. cyclone	16.06.16	-	398621	143.87	108.82	36.45	-	-
	Duct-B		3.5mtrs	Batt. cyclone	16.06.16	-	400708	145.15	-	-	-	-
SM-3	Duct-A		3.5mtrs	Batt. cyclone	24.06.16	-	412166	149.76	86.87	24.98	-	-
	Duct-B		3.5mtrs	ESP-6	24.06.16	-	336758	42.29	-	-	-	-

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

JULY'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	25.07.16	6591 T	270143	75.14	-	-	-	-
BF-3	Chimney-2	50 mtr.	8.2mtrs.	Wet scruber							-	-
BF-4	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber	13.07.16	3000 T	246217	49.45	-	-	-	-
BF-5	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber							-	-
BF Stoves-5	Chimney-5	70 mtr.	3.5mtrs.	-	30.07.16	4035 T	105178	26.38	48.34	30.82	-	0.57%
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)**												
Refractory Material plant												
Kiln-1	Stack – 1	80 mtr.	3.3mtrs	ESP's	15.07.16	10.60T/hr	155262	147.20	97.2	-	-	-
Kiln-2	Stack – 1	80 mtr.	3.3mtrs	ESP's	-	-	-	-	-	-	-	-
Kiln-3	Stack – 2	80 mtr.	3.3mtrs	ESP's	21.07.16	10.07T /hr	151278	146.49	86.24	-	-	-
Kiln-4	Stack – 2	80 mtr.	3.3mtrs	ESP;s	09.07.16	10.63T /hr	153478	142.86	96.60	--	-	-
Kiln-5	Stack – 3	80 mtr.	3.3mtrs	ESP's	-	-	--	--	-	-	-	-
Kiln-6	Stack – 3	80 mtr.	3.3mtrs	ESP's	22.07.16	10.88T/hr	148232	148.14	88.32	-	-	-

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.

- 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.

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 scruber	-		-	-	-	-	-	-
Conv. – 1 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	08.07.16		244162	232.16	86.52	-	-	-
Conv. – 2 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	-		-	-	-	-	-	-
Conv. – 3(BL)	Stack – 1	100m	4.3mtrs	Wet scruber	18.07.16		240709	240.14	91.05	-	-	-
Conv. – 3 (NB)	Stack – 1	100 m	4.3mtrs	Wet scruber	18.07.16		106378	35.50	-	-	-	-
Conv. – 4 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	-		-	-	-	-	-	-
Conv. – 5(BL)	Stack – 1	100m	4.3mtrs	Wet scruber	Under Modernization						-	-
SMS-2/CCS	LF-1	80m	1.25m	Bag filter	26.07.16		109162	24.12	-	-	-	-

Standards : 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	-	07.07.16		131607	34.20	245.37	57.63	-	1.86
Batt. # 2	Stack – 2	100 m.	3.5mtrs	-	20.07.16		138671	28.60	205.15	63.27	-	1.75
Batt # 3	Stack - 3	100 m	3.5 mtrs	-	28.07.16		141372	24.17	209.72	30.16	-	2.35
Batt. # 4	Stack – 4	100 m.	3.5 mtrs	-	11.07.16		136721	36.75	188.44	42.76	-	2.46
Batt. # 5	Stack – 5	100 m.	3.5mtrs	-	02.07.16		138628	48.15	210.58	55.39	-	2.84
Batt # 6	Stack - 6	100 m.	3.5 mts	-	01.07.16		136476	44.15	213.76	50.56	-	2.67
Batt. # 7	Stack – 7	100 m.	3.5mtrs	Under Rebuilding								
Batt. # 8	Stack – 8	100 m.	3.5mtrs	Shut down for Rebuilding								

Standards : 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	04.07.16		390562	147.35	105.96	46.26	-	-
	Duct-B		3.5mtrs	Batt. cyclone	04.07.16		398215	148.63	-	-	-	-
SM-2	Duct-A		3.5mtrs	Batt. cyclone	12.07.16		401872	146.74	110.32	42.52	-	-
	Duct-B		3.5mtrs	Batt. cyclone	12.07.16		405720	145.62	-	-	-	-
SM-3	Duct-A		3.5mtrs	Batt. cyclone	23.07.16		385473	146.92	98.87	40.51	-	-
	Duct-B		3.5mtrs	ESP-6	23.07.16		376526	46.25	-	-	-	-

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

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

AUG'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	08.08.16	6437 T	268562	81.75	-	-	-	-
BF-3	Chimney-2	50 mtr.	8.2mtrs.	Wet scruber							-	-
BF-4	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber	25.08.16	5901 T	251620	72.25	-	-	-	-
BF-5	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber							-	-
BF Stoves-3	Chimney-3	70 mtr.	3.5mtrs.	-	31.08.16	3402 T	112409	29.64	32.24	28.67	-	0.68%
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	04.08.16	11.25T/hr	154326	144.68	96.10	-	-	-
Kiln-3	Stack – 2	80 mtr.	3.3mtrs	ESP's	-	-	-	-	-	-	-	-
Kiln-4	Stack – 2	80 mtr.	3.3mtrs	ESP;s	17.08.16	10.78T/hr	147450	145.16	95.96	--	-	-
Kiln-5	Stack – 3	80 mtr.	3.3mtrs	ESP's	09.08.16	10.63T/hr	145685	146.05	68.10	-	-	-
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	01.08.16	-	100561	36.22	-	-	-	-
Conv. – 1 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber	01.08.16	-	245246	253.33	95.71	-	-	-
Conv. – 2 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber	-	-	-	-	-	-	-	-
Conv. – 3(BL)	Stack – 1	100m	4.3mtrs	Wet scrubber	16.08.16	-	239654	205.44	85.11	-	-	-
Conv. – 3 (NB)	Stack – 1	100 m	4.3mtrs	Wet scrubber	-	-	-	-	-	-	-	-
Conv. – 4 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber	10.08.16	-	241762	198.87	78.09	-	-	-
Conv. – 5(BL)	Stack – 1	100m	4.3mtrs	Wet scrubber	Under Modernization						-	-
SMS-2/CCS	LF-2	80m	1.25m	Bag filter	27.08.16	-	106428	26.4	-	-	-	-

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	-	02.08.16	-	135789	28.46	184.57	50.29	-	1.96
Batt. # 2	Stack – 2	100 m.	3.5mtrs	-	12.08.16	-	140842	32.25	284.71	63.54	-	1.92
Batt # 3	Stack - 3	100 m	3.5 mtrs	-	26.08.16	-	142162	38.72	205.16	40.36	-	2.05
Batt. # 4	Stack – 4	100 m.	3.5 mtrs	-	22.08.16	-	138721	24.97	226.02	55.31	-	2.45
Batt. # 5	Stack – 5	100 m.	3.5mtrs	-	06.08.16	-	145605	49.15	209.16	44.17	-	2.62
Batt # 6	Stack - 6	100 m.	3.5 mts	-	15.08.16	-	127524	47.96	216.82	53.13	-	2.68
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	13.08.16	-	401762	147.22	112.16	36.19	-	-
	Duct-B		3.5mtrs	Batt. cyclone	13.08.16	-	399675	146.90	-	-	-	-
SM-2	Duct-A		3.5mtrs	Batt. cyclone	29.08.16	-	380198	146.60	103.52	40.42	-	-
	Duct-B		3.5mtrs	Batt. cyclone	29.08.16	-	379006	148.12	-	-	-	-
SM-3	Duct-A		3.5mtrs	Batt. cyclone	19.08.16	-	400562	145.55	90.96	36.72	-	-
	Duct-B		3.5mtrs	ESP-6	19.08.16	-	382654	51.16	-	-	-	-

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

SEPT'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					-	-	-	-
BF-3	Chimney-2	50 mtr.	8.2mtrs.	Wet scruber	06.09.16	3080 T	230462	71.52	-		-	-
BF-4	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber					-	-	-	-
BF-5	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber	19.09.16	4830 T	262554	77.86			-	-
BF Stoves-4	Chimney-4	70 mtr.	3.5mtrs.	-	29.09.16	2660 T	109882	28.42	32.56	32.12	-	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	05.09.16	11.25 T/hr	142411	142.36	98.87	-	-	-
Kiln-4	Stack – 2	80 mtr.	3.3mtrs	ESP;s	22.09.16	11.25 T/hr	149163	146.70	83.52	--	-	-
Kiln-5	Stack – 3	80 mtr.	3.3mtrs	ESP's	10.09.16	11.19T/hr	146238	128.35	78.26	-	-	-
Kiln-6	Stack – 3	80 mtr.	3.3mtrs	ESP's	28.09.16	11.04T/hr	140589	148.26	86.12	-	-	-

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	24.09.16	-	105621	21.05	-	-	-	-
Conv. – 1 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber	24.09.16	-	248365	202.64	130.20	-	-	-
Conv. – 2 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber	-	-	-	-	-	-	-	-
Conv. – 3(BL)	Stack – 1	100m	4.3mtrs	Wet scrubber	09.09.16	-	238162	195.16	90.86	-	-	-
Conv. – 3 (NB)	Stack – 1	100 m	4.3mtrs	Wet scrubber	-	-	-	-	-	-	-	-
Conv. – 4 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber	-	-	-	-	-	-	-	-
Conv. – 5(BL)	Stack – 1	100m	4.3mtrs	Wet scrubber	Under Modernization						-	-
SMS-2/CCS	LF-1	80m	1.25m	Bag filter	27.09.16	-	109625	25.5	-	-	-	-

Standard : PM - 300, SO2 - , NOx - , CO - #50mg/Nm3 **(Units: mg/Nm^3)**

* Monitored in individual ducts(of dia 2.5 m each) from corresponding converters. SMS-2/CCS Stack -PM All ducts are connected to a common stack

Coke Oven												
Batt. # 1	Stack – 1	100 m.	3.5mtrs	-	01.09.16	-	139626	28.66	216.22	40.60	-	1.96
Batt. # 2	Stack – 2	100 m.	3.5mtrs	-	17.09.16	-	140502	41.07	208.52	66.10	-	2.05
Batt # 3	Stack - 3	100 m	3.5 mtrs	-	03.09.16	-	148485	44.06	238.52	48.96	-	2.34
Batt. # 4	Stack – 4	100 m.	3.5 mtrs	-	23.09.16	-	144775	31.92	215.62	46.12	-	2.16
Batt. # 5	Stack – 5	100 m.	3.5mtrs	-	07.09.16	-	137434	44.51	225.27	45.31	-	2.82
Batt # 6	Stack - 6	100 m.	3.5 mts	-	12.09.16	-	135628	47.36	270.52	48.32	-	2.65
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	26.09.16	-	341582	148.16	105.16	38.76	-	-
	Duct-B		3.5mtrs	Batt. cyclone	26.09.16	-	330956	145.05	-	-	-	-
SM-2	Duct-A		3.5mtrs	Batt. cyclone	16.09.16	-	402516	146.12	98.18	42.32	-	-
	Duct-B		3.5mtrs	Batt. cyclone	16.09.16	-	399623	145.51	-	-	-	-
SM-3	Duct-A		3.5mtrs	Batt. cyclone	21.09.16	-	401621	146.92	101.96	30.62	-	-
	Duct-B		3.5mtrs	ESP-6	21.09.16	-	372625	54.62	-	-	-	-

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

APR'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.	18.04.16	88.14	47.86	36.80	41.42	41.52	36.16	0.14	1.72	1.11	0.52	5.76	1.115
2	Garga Dam	18.04.16	74.36	38.19	15.05	12.36	38.16	30.31	0.10	1.66	1.05	0.42	4.81	0.825
3	Sector-12	19.04.16	85.16	42.76	32.11	43.30	40.17	48.65	0.09	1.52	1.12	0.41	5.05	0.920
4	Sector-9	20.04.16	90.21	45.92	40.02	41.86	41.02	27.52	0.08	1.42	1.16	0.40	4.72	0.816
5	Bokaro Hotel	20.04.16	80.31	43.96	35.45	38.87	37.92	28.53	0.10	1.71	1.05	0.46	5.12	0.990
6	CISF (SGP)	21.04.16	91.23	50.31	36.42	42.16	42.16	29.66	0.12	1.40	1.21	0.50	5.33	0.835
7	Air Strip	19.04.16	75.65	46.31	38.89	43.09	43.86	32.15	0.11	1.60	1.07	0.39	4.16	0.910
8	CAAQMS at Main gate	19.04.16	73.40	31.50	21.20	15.60	10.60	19.30	-	0.20	-	-	-	0.900

MAY'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.	11.05.16	86	51	41.5	26.9	51.4	91	0.17	3.76	0.61	< 0.24	6.70	0.472
2	Garga Dam	11.05.16	78	36	29.7	11.9	33.8	66	0.30	<2.60	1.76	< 0.24	4.89	1.900
3	Sector-12	10.05.16	92	39	35.6	17.4	34.6	64	0.29	< 2.60	2.26	< 0.24	11.62	0.425
4	Sector-9	09.05.16	111	47	32.8	15.5	48.2	96	0.22	2.95	1.53	<0.24	5.34	0.428
5	Bokaro Hotel	09.05.16	74	52	31.9	12.2	39.3	97	0.24	< 2.60	1.13	<0.24	4.92	1.550
6	CISF (SGP)	12.05.16	84	41	18.0	12.5	58.2	89	0.26	3.16	2.51	<0.24	10.92	1.745
7	Air Strip	10.05.16	92	57	38.8	20.5	43.6	85	0.29	3.21	1.31	<0.24	8.82	0.885
8	CAAQMS at Main gate	02.05.16	64	31	13.3	14.1	14.1	36.7	-	0.20	-	-	-	1.100

JUNE'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.	13.06.16	83	52	39.8	25.7	39.8	90.2	0.22	2.95	0.82	< 0.24	2.45	0.780
2	Garga Dam	13.06.16	70	40	25.4	11.1	36.5	72.5	0.12	<2.60	1.06	< 0.24	2.77	1.20
3	Sector-12	13.06.16	85	41	32.1	16.8	38.5	83.6	0.12	< 2.60	1.08	< 0.24	2.69	0.490
4	Sector-9	14.06.16	97	43	22.2	12.4	47.2	59.4	0.39	2.74	2.34	<0.24	5.20	0.550
5	Bokaro Hotel	14.06.16	69	50	34.8	13.4	41.6	45.9	0.97	< 2.60	0.64	<0.24	3.14	1.32
6	CISF (SGP)	14.06.16	78	47	26.9	16.6	51.6	40.2	0.10	<2.60	0.97	<0.24	2.24	1.090
7	Air Strip	13.06.16	91	51	21.9	16.6	37.5	92.8	0.23	2.82	1.97	<0.24	2.78	0.710
8	CAAQMS at Main gate	30.06.16	41	17.5	15.9	7.70	1.80	26.3	-	0.40	-	-	-	0.800

JULY'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.	11.07.16	77	46	25.4	17.8	48.2	50.6	0.20	2.35	1.1	0.35	0.7	0.530
2	Garga Dam	11.07.16	66	38	20.0	10.7	35.4	32.3	0.34	1.95	0.9	0.42	0.58	0.99
3	Sector-12	11.07.16	72	38	18.8	13.4	36.8	36.5	0.44	2.03	0.9	0.37	0.36	0.39
4	Sector-9	12.07.16	82	41	17.3	12.6	47.4	23.5	0.46	2.76	1.0	0.52	0.94	0.47
5	Bokaro Nivas	13.07.16	63	44	15	11.4	37.5	11.4	0.32	2.34	2.0	0.26	1.24	1.22
6	CISF (SGP)	13.07.16	71	42	20.4	15.6	20.6	20.4	0.53	2.84	0.5	0.46	0.42	1.13
7	TA Building	12.07.16	79	44	15	11.4	52.9	20.4	0.19	2.68	1.9	0.62	0.46	1.30
8	CAAQMS at Main gate	28.07.16	50	23.1	20.3	16.9	4.4	12.4	-	3.4	-	-	-	1.20
9	CAAQMS at TA building	03.07.16	91	17	29.37	16.77	4.22	21.19	-	3.55	-	-	-	1.12

AUG'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.	16.08.16	71	35.2	31.0	20.6	42.1	40.6	0.18	2.50	0.72	0.22	0.32	0.82
2	Garga Dam	16.08.16	74	34.0	29.7	14.7	29.4	26.2	0.20	2.10	0.28	0.19	11.1	0.70
3	Sector-12	16.08.16	77	41.3	22.3	16.9	23.8	40.8	0.15	2.86	0.35	0.16	0.35	1.05
4	Sector-9	17.08.16	91	50.7	25.8	18.1	51.4	35.5	0.24	3.11	0.19	0.11	7.33	1.29
5	Bokaro Nivas	17.08.16	65	38.8	20.2	11.5	32.7	43.0	0.09	2.16	0.18	0.12	0.28	0.98
6	CISF (SGP)	18.08.16	80	44.1	29.5	16.1	47.8	21.5	0.17	3.27	0.24	0.18	11.3	1.11
7	Air Strip	17.08.16	56	28.7	27.3	19.5	39.2	38.7	0.17	2.08	0.49	0.14	0.26	0.74
8	CAAQMS at Main gate	20.08.16	62.3	25.3	18.3	12.6	4.5	17.0	-	2.35	-	-	-	0.80
9	CAAQMS at TA building	16.08.16	72.14	10.46	3.97	23.55	3.72	40.62	-	3.05	-	-	-	1.30

SEPT'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.	06.09.16	95	48	26	18	53.9	48.8	0.18	3.45	0.72	0.49	3.86	0.86
2	Garga Dam	06.09.16	77	36	30	17	46.5	63.8	0.20	2.40	0.30	0.26	3.26	1.70
3	Sector-12	06.09.16	89	34	25	19	36.3	24.2	0.15	2.35	0.28	0.46	1.26	0.81
4	Sector-9	07.09.16	86	44	20	16	47.4	2.50	0.24	2.87	0.21	0.62	7.33	0.75
5	Bokaro Nivas	0.7.09.16	67	31	24	12	40.5	28.6	0.09	2.12	0.24	0.35	2.62	1.78
6	CISF (SGP)	08.09.16	98	37	27	18	52.4	24.5	0.17	2.96	0.31	0.26	3.25	1.52
7	Air Strip	07.09.16	71	38	28	22	44.2	29.0	0.17	4.32	0.47	0.45	1.02	0.98
8	CAAQMS at Main gate	29.09.16	43.6	27.9	17.1	12.1	43	14.9	-	0.50	-	-	-	0.80
9	CAAQMS at TA building	28.09.16	**30.76**	12.26	14.2	16.72	5.29	-	-	-	-	-	-	0.85

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

Standards : Temp.- Upto 40^{0}C, pH -6.0-8.5, TSS- 100, Phenol- 1.0, Cyanide- 0.20, BOD- 30, COD- 250, Amm. Nitrogen- 50, O&G- 5.0

Note:- Outfall-1 (COBPP, Sinter Plant, TPP, BF, RMP), Outfall-2:(SMS-1, SMS-2 &CCS, Rolling Mills), Outfall-3 (OG, HRCF, Project Sites, BGH)

APR'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	
12.04.16	OF - 1	29.1	8.0	27	0.035	0.021	10.30	74	1.23	0.68	400
	OF – 2	29.5	7.5	24	0.020	0.011	9.78	49	1.84	0.49	350
	OF - 3	Abandoned									

MAY'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	
28.05.16	OF - 1	31.2	7.5	37	0.075	0.041	10.93	172	1.94	1.89	400
	OF – 2	31.3	7.5	53	0.093	0.013	8.42	113	1.36	0.46	350
	OF - 3	Abandoned									

JUNE'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	
28.06.16	OF - 1	32.1	8.05	29	0.048	0.053	10.52	65	2.02	0.40	400
	OF – 2	31.9	7.87	23	0.037	0.009	7.62	46	0.85	0.49	350
	OF - 3	Abandoned									

JULY'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	
15.07.16	OF - 1	30.4	7.5	23	0.046	0.018	10.62	72	1.55	0.52	400
	OF – 2	28.9	8.0	21	0.018	0.016	5.64	52	1.75	0.45	350
	OF - 3	Abandoned									

AUG'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	
31.08.16	OF - 1	27.6	8.06	24	0.051	0.078	10.25	96	1.92	0.64	400
	OF – 2	27.3	7.01	27	0.029	0.018	7.24	68	0.52	0.32	350
	OF - 3	Abandoned									

SEPT'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	
09.09.16	OF - 1	28.6	7.50	27	0.030	0.044	9.82	68	1.84	0.94	400
	OF – 2	27.5	6.32	24	0.024	0.028	7.62	48	0.82	0.71	350
	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.

APR'2016

Date	Time of Monitoring	Name of the STP	Quantity of the Effluent	**Temp. ^{0}C**	**pH**	**TSS**	**BOD**	**COD**	**Remarks**
05.04.16	12.20 pm	BGH	-	27.7	8.0	15	12.62	72	
	11.30 am	Dhandabra	-	28.1	8.1	14	10.80	80	
	11.00 am	Sector -6	-	27.2	7.2	17	11.65	64	
	10.35 am	Camp-2	-	27.9	7.5	17	10.52	56	
	10.15 am	Sector-12	-	27.4	7.8	18	12.37	69	

MAY'2016

Date	Time of Monitoring	Name of the STP	Quantity of the Effluent	**Temp. ^{0}C**	**pH**	**TSS**	**BOD**	**COD**	**Remarks**
17.05.16	12.20 pm	BGH	-	31.1	6.5	22	11.55	59	
	11.30 am	Dhandabra	-	30.5	7.0	16	12.05	78	
	11.00 am	Sector -6	-	31.4	6.5	19	10.85	62	
	10.35 am	Camp-2	-	30.9	7.5	20	10.95	64	
	10.15 am	Sector-12	-	31.2	7.5	18	10.15	79	

JUNE'2016

Date	Time of Monitoring	Name of the STP	Quantity of the Effluent	**Temp. ^{0}C**	**pH**	**TSS**	**BOD**	**COD**	**Remarks**
21.06.16	12.20 pm	BGH	-	30.7	8.14	12	10.80	69	
	11.30 am	Dhandabra	-	31.6	8.26	17	12.50	72	
	11.00 am	Sector -6	-	30.4	7.27	16	9.90	58	
	10.35 am	Camp-2	-	31.3	8.07	15	15.42	82	
	10.15 am	Sector-12	-	32.2	7.68	14	12.62	70	

JULY'2016

Date	Time of Monitoring	Name of the STP	Quantity of the Effluent	**Temp. ^{0}C**	**pH**	**TSS**	**BOD**	**COD**	**Remarks**
29.07.16	12.20 pm	BGH	-	26.4	8.12	18	10.20	80	
	11.30 am	Dhandabra	-	23.4	8.04	20	9.87	85	
	11.00 am	Sector -6	-	25.7	7.15	15	8.14	64	
	10.35 am	Camp-2	-	26.8	7.18	14	9.17	72	
	10.15 am	Sector-12	-	28.2	8.10	15	10.15	94	

AUG'2016

Date	Time of Monitoring	Name of the STP	Quantity of the Effluent	**Temp. ^{0}C**	**pH**	**TSS**	**BOD**	**COD**	**Remarks**
16.08.16	12.20 pm	BGH	-	28.8	7.06	21	10.25	68	
	11.30 am	Dhandabra	-	28.9	7.18	18	9.20	73	
	11.00 am	Sector -6	-	28.5	7.12	20	9.25	96	
	10.35 am	Camp-2	-	27.2	6.80	15	13.26	56	
	10.15 am	Sector-12	-	27.3	7.43	18	8.95	82	

SEPT'2016

Date	Time of Monitoring	Name of the STP	Quantity of the Effluent	**Temp. ^{0}C**	**pH**	**TSS**	**BOD**	**COD**	**Remarks**
20.09.16	12.20 pm	BGH	-	28.3	7.14	12	10.32	58	
	11.30 am	Dhandabra	-	27.8	7.42	15	11.48	64	
	11.00 am	Sector -6	-	28.5	7.34	13	10.75	72	
	10.35 am	Camp-2	-	28.3	6.96	16	13.05	124	
	10.15 am	Sector-12	-	27.9	7.32	14	12.60	76	