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)

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 ten stacks of Bokaro Steel Plant. Battery No.1 &2 have been rebuilt. These are equipped with all pollution control facilities i.e. Charging emission control system, Pushing emission control system. Battery No.5 &Battery No.6 have been hot repaired. Batt#3 & Batt#4 have been cold repaired. Battery#7 is under rebuilding. Coke oven Batt#8 has also been taken under shutdown for rebuilding. Emission level in all working Coke oven Batteries are within stipulated norm of 50 mg/Nm3. Stack emission data of Batt#1,Batt#2,Batt#3 and Batt#4 have been uplinked to CPCB & JSPCB server. 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. The order is being placed for installation of online Stack monitoring system & up-linking to CPCB and JSPCB server in remaining nineteen stacks. 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 are 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 July'2016.
- Batt#3 & Batt#4 have been commissioned after cold repair.
- Batt#8 has been taken under shut down for its Rebuilding.
- Dry Fog dust suppression system have been installed in Coal Handling & Coke Sorting Plant of Coke ovens.

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:

Fugitive emission level in all shops of Bokaro Steel Plant is below stipulated norm. The fugitive emission level in different areas of the Plant is monitored regularly and its report is sent to CPCB every month, including BF & SP. Though the fugitive emission level at different sections of Sinter plant is within norm, BSL is going for the installation of ESP based area de-dusting system Sinter Plant Machine Floor for further reduction of dust level. The TER is under preparation by CET a sister unit of SAIL/BSL

***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 of modified Environment clearance some more quantity of water may be needed but that will be quite less than 3600m3/hr.

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 three outfalls and sewage treatment plant will be treated and recycled for plant operation. SAIL/BSL is going for zero discharge from plant as well as Township. OF-1 & OF-2 plant effluent will be treated & recycled for plant operation. The project is under stage-2 approval. Technology for the treatment & Recycling of Township sewage has been freezed. The TS for the project has been completed. It is under stage-I approval. The Specific Water consumption for the period was 4.36 m^3/TCS. 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:

On-line Effluent monitoring system has been installed in OF-1, OF-2 and ETP outlet. Continuous TOC monitoring system has also 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 Dec'2015 & Feb'2016 respectively. 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'2015 to September'2015 the BF Slag utilization including land filling was around 99.83% 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 this plant As far as SMS slag is concerned its utilization in the period from April'2015 to September'2015 was 82.54% 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 2014-15 was 94.61% 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:

Low grade lime and other solid wastes such as SMS slag, BF flue dust, ESP lime dust, and Mill scale are being used in Sinter Plant. BSL has developed a Fly ash + LD slag brick. Its strength is meeting IS code. BSL has started using Fly ash LD slag Brick in its project.

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

Status:

Fly Ash management at Bokaro is being done by M/S BPSCL(A joint venture power company) is under MOU with BCCL for back filling of Dhori Abandoned mines by Fly Ash. A work shop was organized jointly by M/s BPSCL & JSPCB for proper utilization of Fly Ash. As a proactive measure the use of Fly Ash Brick has been made mandatory in the construction work in both projects as well as works.

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 2015-16 52000 saplings were 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. 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 82.54%
e. BF slag utilization is around 99.83% (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 4.35 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

- Continuous Ambient Air Quality Monitoring Station has been installed & commissioned. Its data signal has been uplinked to CPCB & JSPCB server.2nd CAAQMS is being installed at TA building of Bokaro Steel Plant.
- 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 52000 new saplings have been planted during 2015-16 .
- 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 July'2016.
- 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. A Continuous Ambient Air Quality Station has been installed at the Main gate of the Plant & uplinked to CPCB & JSPCB server.2nd CAAQMS is being installed at Town administration building. Expected to be commissioned by January'2016.

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. Work order is to be issued for installation of secondary dust emission control system at SMS-2. 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. Consultancy job for this project has been completed by M/S IIT Kharagpur.FR/TS has been prepared by Design Bureau. The project is expected to be commissioned by July'2016. 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.

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'2015

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
BF-1	Chimney-1	50 mtr.	8.2mtrs.	Wet scruber	-	-	-	-				
BF-2	Chimney-2	50 mtr.	8.2mtrs.	Wet scruber	27.10.14	7252T	250362	73.81	-	-	-	-
BF-3	Chimney-2	50 mtr.	8.2mtrs.	Wet scruber							-	-
BF-4	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber	07.10.14	5982T	252672	80.15	-	-		
BF-5	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber							-	-
BF Stoves-5	Chimney-5	70 mtr.	3.5mtrs.	-	30.10.14	3177T	139182	29.14	38.89	33.57	-	-
Standards : Charging side chimney- PM - 100 (Units: mg/Nm^3) **BF Stoves – PM- 50 mg/Nm3, SO2- 250 mg/Nm3, NOX- 150 mg/Nm3**												
Refractory Material plant												
Kiln-1	Stack – 1	80 mtr.	3.3mtrs	ESP's	31.10.14	10.54 T/hr	162578	155.62	108.57	-	-	-
Kiln-2	Stack – 1	80 mtr.	3.3mtrs	ESP's						-	-	-
Kiln-3	Stack – 2	80 mtr.	3.3mtrs	ESP's	14.10.14	10.0 T/hr	169621	138.69	71.26	-		-
Kiln-4	Stack – 2	80 mtr.	3.3mtrs	ESP;s	25.10.14	10.21 T/hr	158624	148.86	90.17	-	-	-
Kiln-5	Stack – 3	80 mtr.	3.3mtrs	ESP's	22.10.14	10.75 T/hr	164774	135.55	65.23	-	-	-
Kiln-6	Stack – 3	80 mtr.	3.3mtrs	ESP's	01.10.14	10.12 T/hr	153282	146.12	87.11	-	-	-

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)												
Conv. – 1 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	-	-	-	-	-	-	-	-
Conv. – 2 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	-	-	-	-	-	-	-	-
Conv. – 3(BL)	Stack – 1	100m	4.3mtrs	Wet scruber	16.10.14	-	203228	241.83	75.74	83.49	-	-
Conv. – 4 (NB)	Stack – 1	100 m	4.3mtrs	Wet scruber	15.10.14	-	110216	18.26	-	-	-	-
Conv. – 4 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	15.10.14	-	234651	238.81	69.14	61.23	-	-
Conv. – 5(BL)	Stack – 1	100m	4.3mtrs	Wet scruber	04.10.14	-	240231	216.40	93.27	79.45	-	-
SMS-1/CCS	LF-2	80m	1.25m	Bag filter	28.10.14	-	112763	22.71	-	-	-	-

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	-	02.10.14	-	144556	32.86	262.82	43.72	-	2.14
Batt. # 2	Stack – 2	100 m.	3.5mtrs		23.10.14	-	140229	26.11	192.32	61.09	-	2.08
Batt. # 3	Stack – 3	100 m.	3.5mtrs	-	Under Cold Repair							
Batt. # 4	Stack – 4	100 m.	3.5 mtrs	-	13.10.14	-	136229	43.08	210.01	73.13	-	2.41
Batt. # 5	Stack – 5	100 m.	3.5mtrs	-	09.10.14	-	133632	47.45	172.59	39.42	-	2.71
Batt # 6	Stack - 6	100 m.	3.5 mts	Under Hot Repair								
Batt. # 7	Stack – 7	100 m.	3.5mtrs	Under Rebuilding								
Batt. # 8	Stack – 8	100 m.	3.5mtrs	-	27.10.14	-	138078	48.36	111.08	56.81	-	2.83

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	06.10.14	-	401321	170.32	105.73	70.44	-	-
	Duct-B		3.5mtrs	Batt. cyclone	06.10.14	-	395373	162.55	-	-	-	-
SM-2	Duct-A		3.5mtrs	Batt. cyclone	18.10.14	-	387233	161.86	120.34	56.74	-	-
	Duct-B		3.5mtrs	Batt. cyclone	18.10.14	-	371629	156.62	-	-	-	-
SM-3	Duct-A		3.5mtrs	Batt. cyclone	23.10.14	-	391361	165.92	131.46	52.73	-	-
	Duct-B		3.5mtrs	ESP-6	23.10.14	-	337263	40.62	-	-	-	-

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'2015

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
BF-1	Chimney-1	50 mtr.	8.2mtrs.	Wet scruber	Under Capital Repair							
BF-2	Chimney-2	50 mtr.	8.2mtrs.	Wet scruber	18.05.15	6662	275692	71.92	-	-	-	-
BF-3	Chimney-2	50 mtr.	8.2mtrs.	Wet scruber							-	-
BF-4	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber	09.05.15	5856	267826	70.81	-	-		
BF-5	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber							-	-
BF Stoves-4	Chimney-4	70 mtr.	3.5mtrs.	-	25.05.15	2036	112325	32.15	36.42	29.64	-	-
Standards : Charging side chimney- PM - 100 (Units: mg/Nm^3) **BF Stoves – PM- 50 mg/Nm3, SO2- 250 mg/Nm3, NOX- 150 mg/Nm3**												
Refractory Material plant												
Kiln-1	Stack – 1	80 mtr.	3.3mtrs	ESP's	19.05.15	10.90T/Hr	157862	157.26	78.65	-	-	-
Kiln-2	Stack – 1	80 mtr.	3.3mtrs	ESP's	26.05.15	10.84T/Hr	163215	147.31	69.35	-	-	-
Kiln-3	Stack – 2	80 mtr.	3.3mtrs	ESP's	29.05.15	10.88T/Hr	159634	146.42	82.12	-		-
Kiln-4	Stack – 2	80 mtr.	3.3mtrs	ESP;s						-	-	-
Kiln-5	Stack – 3	80 mtr.	3.3mtrs	ESP's						-	-	-
Kiln-6	Stack – 3	80 mtr.	3.3mtrs	ESP's	02.05.15	11.00T/Hr	156985	156.33	68.96	-	-	-

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 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	16.05.15		240205	156.07	65.26	38.88	-	-
Conv. – 2 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	21.05.15		246311	219.61	60.42	40.22	-	-
Conv. – 3(BL)	Stack – 1	100m	4.3mtrs	Wet scruber							-	-
Conv. – 4 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	11.05.15		236068	236.25	80.51	36.14	-	-
Conv. – 4 (NB)	Stack – 1	100 m	4.3mtrs	Wet scruber	04.05.15		105515	25.59	-	-	-	-
Conv. – 5(BL)	Stack – 1	100m	4.3mtrs	Wet scruber	04.05.15		250779	191.27	62.02	28.14	-	-
SMS-2/CCS	LF-1	80m	1.25m	Bag filter	30.05.15		112365	26.45	-	-	-	-

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	-	01.05.15		153244	29.18	195.56	97.34		1.71
Batt. # 2	Stack – 2	100 m.	3.5mtrs		12.05.15		146358	32.72	165.70	90.62		1.82
Batt. # 3	Stack – 3	100 m.	3.5mtrs	-	Under Cold Repair							
Batt. # 4	Stack – 4	100 m.	3.5 mtrs	-	28.05.15		146328	40.05	165.31	80.16		1.95
Batt. # 5	Stack – 5	100 m.	3.5mtrs	-	08.05.15		145634	43.46	172.83	65.60		2.56
Batt # 6	Stack - 6	100 m.	3.5 mts	-	22.05.15		150259	46.06	190.63	95.50		2.65
Batt. # 7	Stack – 7	100 m.	3.5mtrs	Under Rebuilding								
Batt. # 8	Stack – 8	100 m.	3.5mtrs		15.05.15		148022	49.21	154.62	85.70		2.78

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	05.05.15		402621	160.30	88.66	38.11	-	-
	Duct-B		3.5mtrs	Batt. cyclone	05.05.15		410316	156.36	-	-	-	-
SM-2	Duct-A		3.5mtrs	Batt. cyclone	27.05.15		408362	154.82	78.33	36.11	-	-
	Duct-B		3.5mtrs	Batt. cyclone	27.05.15		405305	153.20	-	-	-	-
SM-3	Duct-A		3.5mtrs	Batt. cyclone	07.05.15		392621	156.14	80.82	48.14	-	-
	Duct-B		3.5mtrs	ESP-6	07.05.15		301516	39.81	-	-	-	-

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

JUNE'2015

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
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	12.06.15	5236	246857	74.14			-	-
BF-4	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber	16.06.15	5483	237862	76.26	-	-		
BF-5	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber							-	-
BF Stoves-2	Chimney-2	70 mtr.	3.5mtrs.	-	29.06.15	3401	108346	26.26	36.42	29.64	-	-
Standards : Charging side chimney- PM - 100 (Units: mg/Nm^3) **BF Stoves – PM- 50 mg/Nm3, SO2- 250 mg/Nm3, NOX- 150 mg/Nm3**												
Refractory Material plant												
Kiln-1	Stack – 1	80 mtr.	3.3mtrs	ESP's	02.06.15	10.63T/Hr	160021	152.25	78.65	-	-	-
Kiln-2	Stack – 1	80 mtr.	3.3mtrs	ESP's	05.06.15	10.21T/Hr	157536	147.15	80.76	-	-	-
Kiln-3	Stack – 2	80 mtr.	3.3mtrs	ESP's	15.06.15	10.21T/Hr	158361	158.72	90.96	-		-
Kiln-4	Stack – 2	80 mtr.	3.3mtrs	ESP;s	27.06.15	11.06T/Hr	153754	157.34	80.45	-	-	-
Kiln-5	Stack – 3	80 mtr.	3.3mtrs	ESP's	11.06.15	10.96 T/Hr	154698	147.55	65.54	-	-	-
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 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	26.06.15		247763	222.75	90.81	27.52	-	-
Conv. – 2 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	06.06.15		255164	199.35	87.77	36.11	-	-
Conv. – 3(BL)	Stack – 1	100m	4.3mtrs	Wet scruber	-		-	-	-	-	-	-
Conv. – 4 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	18.06.15		260114	234.57	85.77	25.25	-	-
Conv. – 5 (NB)	Stack – 1	100 m	4.3mtrs	Wet scruber	10.06.15		112621	23.17	-	-	-	-
Conv. – 5(BL)	Stack – 1	100m	4.3mtrs	Wet scruber	10.06.15		251625	204.63	87.27	38.80	-	-
SMS-2/CCS	LF-1	80m	1.25m	Bag filter	30.06.15		105165	22.52	-	-	-	-

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	-	06.06.15		146352	29.72	253.75	60.35		1.67
Batt. # 2	Stack – 2	100 m.	3.5mtrs		01.06.15		140764	38.57	327.85	50.45		1.96
Batt. # 3	Stack – 3	100 m.	3.5mtrs	-								
Batt. # 4	Stack – 4	100 m.	3.5 mtrs	-	09.06.15		136715	32.11	216.19	70.16		2.02
Batt. # 5	Stack – 5	100 m.	3.5mtrs	-	22.06.15		141633	45.88	240.33	76.83		1.88
Batt # 6	Stack - 6	100 m.	3.5 mts	-	13.06.15		137428	47.20	240.45	84.30		1.96
Batt. # 7	Stack – 7	100 m.	3.5mtrs	Under Rebuilding								
Batt. # 8	Stack – 8	100 m.	3.5mtrs		04.06.15		132651	48.62	210.16	56.72		2.16

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	03.06.15		409197	158.62	101.16	56.11	-	-
	Duct-B		3.5mtrs	Batt. cyclone	03.06.15		400316	166.10	-	-	-	-
SM-2	Duct-A		3.5mtrs	Batt. cyclone	08.06.15		416261	158.76	109.24	75.33	-	-
	Duct-B		3.5mtrs	Batt. cyclone	08.06.15		405979	156.62	-	-	-	-
SM-3	Duct-A		3.5mtrs	Batt. cyclone	24.06.15		398621	163.66	98.35	40.28	-	-
	Duct-B		3.5mtrs	ESP-6	24.06.15		315672	34.75	-	-	-	-

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'2015

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
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	29.07.15	6247 T	260520	71.89	-	-	-	-
BF-4	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber					-	-		
BF-5	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber	22.07.15	5778 T	255436	81.07	-	-	-	-
BF Stoves-3	Chimney-3	70 mtr.	3.5mtrs.	-	01.07.15	2665 T	110263	32.52	36.25	30.46	-	-
Standards : Charging side chimney- PM - 100 (Units: mg/Nm^3) **BF Stoves – PM- 50 mg/Nm3, SO2- 250 mg/Nm3, NOX- 150 mg/Nm3**												
Refractory Material plant												
Kiln-1	Stack – 1	80 mtr.	3.3mtrs	ESP's	11.07.15	10.58T/Hr	155369	158.23	89.14	-	-	-
Kiln-2	Stack – 1	80 mtr.	3.3mtrs	ESP's	14.07.15	11.02T/Hr	153652	143.15	76.54	-	-	-
Kiln-3	Stack – 2	80 mtr.	3.3mtrs	ESP's	-	-	-	-	-	-		-
Kiln-4	Stack – 2	80 mtr.	3.3mtrs	ESP;s	24.07.15	10.0T/Hr	160356	158.16	90.62	-	-	-
Kiln-5	Stack – 3	80 mtr.	3.3mtrs	ESP's	03.07.15	10.73 T/Hr	152635	140.72	96.35	-	-	-
Kiln-6	Stack – 3	80 mtr.	3.3mtrs	ESP's	15.07.15	10.78T/Hr	151359	164.82	80.86	-	-	-

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	08.07.15		101562	24.58	-	-	-	-
Conv. – 1 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	08.07.15		230299	211.82	119.11	56.11	-	-
Conv. – 2 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	17.07.15		241633	246.17	105.16	40.42	-	-
Conv. – 3(BL)	Stack – 1	100m	4.3mtrs	Wet scruber	-		-	-	-	-	-	-
Conv. – 4 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	-		-	-	-	-	-	-
Conv. – 5 (NB)	Stack – 1	100 m	4.3mtrs	Wet scruber	-		-	-	-	-	-	-
Conv. – 5(BL)	Stack – 1	100m	4.3mtrs	Wet scruber	30.07.15		243187	172.12	131.63	48.75	-	-
SMS-2/CCS	LF-2	80m	1.25m	Bag filter	23.07.15		110252	23.44	-	-	-	-

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	-	02.07.15		143854	39.03	240.00	90.52		1.86
Batt. # 2	Stack – 2	100 m.	3.5mtrs		20.07.15		151698	34.94	162.17	55.85		1.90
Batt # 3	Stack - 3	100 m	3.5 mtrs	-	31.07.15		152304	44.65	197.44	75.70		1.88
Batt. # 4	Stack – 4	100 m.	3.5 mtrs	-	10.07.15		148369	47.82	188.50	55.72		2.01
Batt. # 5	Stack – 5	100 m.	3.5mtrs	-	06.07.15		144734	45.95	190.88	48.10		2.73
Batt # 6	Stack - 6	100 m.	3.5 mts	-	09.07.15		145321	49.44	165.77	75.75		2.65
Batt. # 7	Stack – 7	100 m.	3.5mtrs	Under Rebuilding								
Batt. # 8	Stack – 8	100 m.	3.5mtrs	Under 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	07.07.15		402543	168.79	87.60	67.55	-	-
	Duct-B		3.5mtrs	Batt. cyclone	07.07.15		405893	170.16	-	-	-	-
SM-2	Duct-A		3.5mtrs	Batt. cyclone	28.07.15		412051	163.72	78.36	38.52	-	-
	Duct-B		3.5mtrs	Batt. cyclone	28.07.15		409876	165.77	-	-	-	-
SM-3	Duct-A		3.5mtrs	Batt. cyclone	25.07.15		398621	158.61	90.87	60.11	-	-
	Duct-B		3.5mtrs	ESP-6	25.07.05		365785	42.48	-	-	-	-

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'2015

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
BF-1	Chimney-1	50 mtr.	8.2mtrs.	Wet scruber	Under Capital Repair							
BF-2	Chimney-2	50 mtr.	8.2mtrs.	Wet scruber	27.08.15	6719 T	275625	72.86	-	-	-	-
BF-3	Chimney-2	50 mtr.	8.2mtrs.	Wet scruber					-	-	-	-
BF-4	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber	14.08.15	4761 T	372564	78.15	-	-		
BF-5	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber					-	-	-	-
BF Stoves-3	Chimney-3	70 mtr.	3.5mtrs.	-	06.08.15	2108 T	101624	36.14	46.70	38.45	-	-
Standards : Charging side chimney- PM - 100 (Units: mg/Nm^3) **BF Stoves – PM- 50 mg/Nm3, SO2- 250 mg/Nm3, NOX- 150 mg/Nm3**												
Refractory Material plant												
Kiln-1	Stack – 1	80 mtr.	3.3mtrs	ESP's	21.08.15	10.00T/Hr	158723	152.74	90.33	-	-	-
Kiln-2	Stack – 1	80 mtr.	3.3mtrs	ESP's	05.08.15	10.83T/Hr	156325	148.63	109.35	-	-	-
Kiln-3	Stack – 2	80 mtr.	3.3mtrs	ESP's	-	-	-	-	-	-		-
Kiln-4	Stack – 2	80 mtr.	3.3mtrs	ESP;s	17.08.15	10.98 T/Hr	161268	149.84	95.65	-	-	-
Kiln-5	Stack – 3	80 mtr.	3.3mtrs	ESP's	18.08.15	10.31 T/Hr	155369	147.86	105.11	-	-	-
Kiln-6	Stack – 3	80 mtr.	3.3mtrs	ESP's	26.08.15	10.89 T/Hr	158245	160.36	90.65	-	-	-

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 scrubber					-	-	-	-
Conv. – 1 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber	11.08.15		215522	253.43	102.73	46.72	-	-
Conv. – 2 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber	29.08.15		243165	236.40	90.62	50.14	-	-
Conv. – 3(BL)	Stack – 1	100m	4.3mtrs	Wet scrubber	-		-	-	-	-	-	-
Conv. – 4 (BL)	Stack – 1	100 m	4.3mtrs	Wet scrubber	-		-	-	-	-	-	-
Conv. – 5 (NB)	Stack – 1	100 m	4.3mtrs	Wet scrubber	08.08.15		105266	22.48	-	-	-	-
Conv. – 5(BL)	Stack – 1	100m	4.3mtrs	Wet scrubber	08.08.15		236187	225.59	109.24	52.16	-	-
SMS-2/CCS	LF-1	80m	1.25m	Bag filter	31.08.15		105621	20.35	-	-	-	-

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	-	15.08.15		135581	42.69	261.46	65.70		1.96
Batt. # 2	Stack – 2	100 m.	3.5mtrs		28.08.15		156327	36.42	208.06	70.86		1.86
Batt # 3	Stack - 3	100 m	3.5 mtrs	-	19.08.15		140383	40.15	226.71	63.14		2.10
Batt. # 4	Stack – 4	100 m.	3.5 mtrs	-	01.08.15		145260	33.87	251.25	71.40		1.95
Batt. # 5	Stack – 5	100 m.	3.5mtrs	-	03.08.15		146263	49.07	240.33	92.35		2.05
Batt # 6	Stack - 6	100 m.	3.5 mts	-	12.08.15		152132	47.30	210.73	73.77		1.88
Batt. # 7	Stack – 7	100 m.	3.5mtrs	Under Rebuilding								
Batt. # 8	Stack – 8	100 m.	3.5mtrs									

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	25.08.15		398462	171.17	92.16	34.17	-	-
	Duct-B		3.5mtrs	Batt. cyclone	25.08.15		405812	163.80			-	-
SM-2	Duct-A		3.5mtrs	Batt. cyclone	13.08.15		410562	165.55	84.72	40.31	-	-
	Duct-B		3.5mtrs	Batt. cyclone	13.08.15		408731	167.32			-	-
SM-3	Duct-A		3.5mtrs	Batt. cyclone	07.08.15		396365	160.65	76.75	42.35	-	-
	Duct-B		3.5mtrs	ESP-6	07.08.15		295621	38.72			-	-

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

SEP'2015

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
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	15.09.15	6640 T	254826	73.36	-	-	-	-
BF-4	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber					-	-		
BF-5	Chimney-3	50 mtr.	8.2mtrs.	Wet scruber	21.09.15	3698 T	258436	60.23	-	-	-	-
BF Stoves-5	Chimney- 5	70 mtr.	3.5mtrs.	-	27.09.15	3503 T	108781	25.52	35.26	34.92	-	-
Standards : Charging side chimney- PM - 100 (Units: mg/Nm^3) **BF Stoves – PM- 50 mg/Nm3, SO2- 250 mg/Nm3, NOX- 150 mg/Nm3**												
Refractory Material plant												
Kiln-1	Stack – 1	80 mtr.	3.3mtrs	ESP's	01.09.15	10.21 T/Hr	152368	144.63	87.39	-	-	-
Kiln-2	Stack – 1	80 mtr.	3.3mtrs	ESP's						-	-	-
Kiln-3	Stack – 2	80 mtr.	3.3mtrs	ESP's	23.09.15	9.85 T/Hr	155257	167.50	65.36	-		-
Kiln-4	Stack – 2	80 mtr.	3.3mtrs	ESP;s	25.09.15	8.96 T/Hr	158428	158.75	69.86	-	-	-
Kiln-5	Stack – 3	80 mtr.	3.3mtrs	ESP's	08.09.15	10.71 T/Hr	163025	146.14	67.25	-	-	-
Kiln-6	Stack – 3	80 mtr.	3.3mtrs	ESP's	16.09.15	10.63 T/Hr	163251	171.52	79.86	-	-	-

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	24.09.15		241623	251.91	113.41		-	-
Conv. – 2 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	18.09.15		238365	246.36	95.11		-	-
Conv. – 3(BL)	Stack – 1	100m	4.3mtrs	Wet scruber	-		-	-	-	-	-	-
Conv. – 4 (BL)	Stack – 1	100 m	4.3mtrs	Wet scruber	-		-	-	-	-	-	-
Conv. – 5 (NB)	Stack – 1	100 m	4.3mtrs	Wet scruber	09.09.15		106268	29.86	-	-	-	-
Conv. – 5(BL)	Stack – 1	100m	4.3mtrs	Wet scruber	09.09.15		228799	217.96	116.38	-	-	-
SMS-2/CCS	LF-2	80m	1.25m	Bag filter	22.09.15		109681	18.97	-	-	-	-

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	-	03.09.15		139576	38.78	186.49	50.50		1.91
Batt. # 2	Stack – 2	100 m.	3.5mtrs		02.09.15		135507	38.60	298.42	70.70		1.85
Batt # 3	Stack - 3	100 m	3.5 mtrs	-	28.09.15		142163	42.63	190.66	56.34		2.15
Batt. # 4	Stack – 4	100 m.	3.5 mtrs	-	20.09.15		138073	32.16	188.36	66.18		2.06
Batt. # 5	Stack – 5	100 m.	3.5mtrs	-	17.09.15		140712	47.11	190.98	75.72		2.36
Batt # 6	Stack - 6	100 m.	3.5 mts	-	13.09.15		139625	48.31	205.16	60.52		2.22
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	07.09.15		418174	174.72	65.18	48.22	-	-
	Duct-B		3.5mtrs	Batt. cyclone	07.09.15		413851	168.42	-	-	-	-
SM-2	Duct-A		3.5mtrs	Batt. cyclone	30.09.15		409632	172.86	85.91	47.11	-	-
	Duct-B		3.5mtrs	Batt. cyclone	30.09.15		416217	160.15	-	-	-	-
SM-3	Duct-A		3.5mtrs	Batt. cyclone	13.09.15		408182	165.85	95.48	38.42	-	-
	Duct-B		3.5mtrs	ESP-6	13.09.15		365208	38.12	-	-	-	-

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

Ambient Air Quality and fugitive emissions

Ambient Air Quality (AAQ) (All Ambient Air Quality Station)

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 , BaP - 1.0 , Ni – 20.0 (units – nano gram/meter^3) , CO – 2.0 mg/m^3

APR'2015

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.	22.04.15	87.23	46.25	29.42	32.52	29.56	42.56	0.09	1.82	0.65	0.52	6.23	1.234
2	Garga Dam	22.04.15	72.45	36.42	12.56	21.36	35.42	25.63	0.06	1.11	0.35	0.23	3.42	0.532
3	Sector-12	23.04.15	82.69	41.36	21.52	36.29	28.52	36.25	0.12	1.23	0.46	0.36	4.39	0.635
4	Sector-9	24.04.15	85.36	47.29	32.45	39.35	29.35	46.39	0.15	1.35	0.29	0.42	5.23	0.726
5	Bokaro Hotel	24.04.15	79.54	51.46	26.45	32.23	28.78	38.45	0.04	1.06	0.21	0.26	3.52	0.539
6	CISF (SGP)	25.04.15	83.98	39.56	13.26	15.62	16.26	34.23	0.06	1.56	0.16	0.36	4.39	0.368
7	Air Strip	23.04.15	69.48	31.78	11.92	12.52	23.53	36.28	0.11	0.52	0.31	0.39	2.36	0.238
8	CAAQMS at Main gate	27.04.15	30.8	22.8	20.4	11.6	22.3	35.4	-	2.1	-	-	-	0.800

MAY'2015

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.	15.05.15	88.18	49.32	28.14	45.11	36.12	41.34	0.12	1.47	0.62	0.32	7.51	1.151
2	Garga Dam	15.05.15	79.19	36.14	20.15	43.25	27.70	38.74	0.10	1.28	0.44	0.16	6.32	0.855
3	Sector-12	16.05.15	84.73	45.05	24.76	49.77	30.11	44.00	0.09	1.70	0.450	0.23	8.44	0.823
4	Sector-9	17.05.15	89.70	46.74	23.66	44.20	26.53	42.75	0.09	1.15	0.40	0.21	7.36	0.901
5	Bokaro Hotel	17.05.15	76.66	39.45	18.96	38.75	28.73	36.28	0.010	1.22	0.55	0.14	5.87	0.825
6	CISF (SGP)	18.05.15	90.25	42.36	25.86	40.62	29.22	40.33	0.009	1.53	0.53	0.27	5.05	0.981
7	Air Strip	16.05.15	86.37	43.42	19.33	47.38	39.76	37.25	0.008	1.49	0.47	0.23	6.72	1.051
8	CAAQMS at Main gate	22.05.15	80.7	40.0	26.4	28.2	22.8	52.4	-	3.90	-	-	-	1.000

JUNE'2015

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.	13.06.15	87.62	47.11	28.11	47.15	36.11	40.16	0.14	1.62	0.54	0.28	7.49	1.113
2	Garga Dam	13.06.15	80.72	36.70	20.10	39.38	30.16	38.17	0.09	1.51	0.48	0.24	6.81	0.941
3	Sector-12	14.06.15	78.16	40.51	18.16	41.52	25.51	41.31	0.08	1.31	0.43	0.16	8.11	0.871
4	Sector-9	15.06.15	84.12	41.10	17.74	44.84	24.88	43.21	0.09	1.14	0.49	0.15	6.32	0.837
5	Bokaro Hotel	15.06.15	83.32	38.18	16.33	39.72	29.11	48.16	0.12	1.51	0.58	0.30	7.61	0.924
6	CISF (SGP)	16.06.15	90.66	43.15	24.33	36.15	27.54	40.76	0.09	1.44	0.62	0.31	5.96	0.934
7	Air Strip	14.06.15	86.12	35.11	16.70	45.5	33.12	41.52	0.13	1.47	0.55	0.26	6.92	0.952
8	CAAQMS at Main gate	25.06.15	58.70	27.40	22.20	13.50	17.80	11.40	-	0.20	-	-	-	1.300

JULY'2015

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.	13.07.15	85.15	40.20	26.54	40.57	36.11	43.4	0.14	1.62	0.48	0.29	9.36	1.132
2	Garga Dam	13.07.15	78.76	36.72	16.96	51.18	28.72	41.05	0.09	1.43	0.43	0.26	8.17	0.896
3	Sector-12	14.07.15	80.15	41.71	15.16	42.21	27.15	38.15	0.01	1.28	0.51	0.16	6.15	0.715
4	Sector-9	15.07.15	83.75	42.16	20.85	36.72	29.51	39.76	0.08	1.33	0.50	0.17	7.32	0.819
5	Bokaro Hotel	15.07.15	77.62	38.98	18.06	43.16	27.0	36.25	0.09	1.32	0.43	0.20	6.82	0.932
6	CISF (SGP)	16.07.15	90.45	44.88	21.72	41.72	30.15	33.15	0.11	1.42	0.53	0.28	7.84	0.965
7	Air Strip	14.07.15	87.15	36.11	20.76	47.34	31.30	34.74	0.10	1.37	0.55	0.26	8.74	0.975
8	CAAQMS at Main gate	30.07.15	58.5	18.3	14.00	19.80	26.20	11.20	-	1.50	-	-	-	0.800

AUG'2015

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.	10.08.15	91.25	48.11	35.16	48.11	36.11	36.46	0.13	1.56	0.50	0.36	8.86	1.136
2	Garga Dam	10.08.15	86.15	40.50	26.21	36.15	28.57	40.17	0.09	1.42	0.36	0.30	7.52	0.962
3	Sector-12	11.08.15	78.76	42.36	18.36	38.14	30.52	38.16	0.10	1.36	0.41	0.26	6.72	0.831
4	Sector-9	12.08.15	82.20	45.16	20.32	41.16	39.26	36.42	0.11	1.49	0.45	0.25	7.15	0.905
5	Bokaro Hotel	12.08.15	79.36	41.32	21.66	33.46	27.38	39.54	0.08	1.40	0.47	0.20	6.17	0.882
6	CISF (SGP)	13.08.15	90.05	47.72	22.73	39.80	29.46	33.81	0.12	1.39	0.39	0.31	6.85	0.966
7	Air Strip	11.08.15	85.35	44.32	18.66	44.48	34.11	26.52	0.10	1.32	0.50	0.27	6.90	0.805
8	CAAQMS at Main gate	25.08.15	52.7	20.4	16.25	16.26	22.2	20.0	-	2.08	-	-	-	1.100

SEP'2015

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.	07.09.15	89.17	48.00	32.16	56.15	38.16	41.16	0.14	1.62	1.44	0.61	6.96	1.120
2	Garga Dam	07.09.15	75.30	43.25	21.70	48.12	25.77	38.36	0.09	1.41	1.36	0.20	7.15	0.868
3	Sector-12	08.09.15	80.86	45.15	20.35	39.25	28.15	34.11	0.08	1.35	1.25	0.25	6.88	0.725
4	Sector-9	09.09.15	82.96	38.36	29.16	40.16	36.15	31.76	0.10	1.42	1.05	0.31	5.11	0.912
5	Bokaro Hotel	09.09.15	75.62	40.55	18.88	42.81	29.05	38.17	0.09	1.25	1.32	0.32	6.88	0.882
6	CISF (SGP)	10.09.15	90.31	46.12	26.52	36.42	30.62	28.52	0.11	1.44	1.41	0.41	5.97	0.775
7	Air Strip	08.09.15	82.81	35.96	23.11	40.85	32.11	27.11	0.10	1.22	1.33	0.30	6.05	0.855
8	CAAQMS at Main gate	06.09.15	77.5	29.1	14.5	20.8	13.0	25.6	-	2.80	-	-	-	1.100

Water Pollution Status

Water consumption 4.52m^3 / tonne of Crude Steel produced
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 -6.0-8.50, 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'2015

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	
17.04.15	OF- 1	27.5	7.50	26	0.015	0.011	10.63	74	2.35	0.74	450m3/hr
	OF- 2	26.4	8.0	21	0.012	0.008	7.00	47	2.21	0.31	200m3/hr
	OF- 3	28.8	7.41	25	0.009	0.006	7.25	39	1.25	0.24	100m3/hr

MAY'2015

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	
12.05.15	OF- 1	27.5	7.55	36	0.012	0.012	10.52	74	3.52	0.42	450m3/hr
	OF- 2	28.0	7.42	27	0.019	0.008	8.25	40	0.63	0.27	200m3/hr
	OF- 3	28.6	8.0	24	0.013	0.006	7.30	37	1.32	0.37	100m3/hr

JUNE'2015

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	
16.06.15	OF- 1	28.3	7.0	28	0.024	0.022	10.14	52	1.58	0.55	450m3/hr
	OF- 2	29.1	7.50	26	0.015	0.020	8.56	38	1.36	0.36	200m3/hr
	OF- 3	29.0	7.0	22	0.021	0.011	7.25	48	1.27	0.27	100m3/hr

JULY'2015

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	
10.07.15	OF- 1	27.7	7.88	36	0.033	0.033	9.25	67	1.86	0.74	450m3/hr
	OF- 2	27.2	7.26	33	0.087	0.012	8.80	52	1.21	0.65	200m3/hr
	OF- 3	27.6	7.31	28	0.030	0.015	7.68	45	0.942	0.56	100m3/hr

AUG'2015

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	
11.08.15	OF- 1	29.4	7.93	34	0.096	0.055	11.7	92	1.07	0.64	450m3/hr
	OF- 2	28.3	7.70	28	0.048	0.032	9.75	86	1.55	0.52	200m3/hr
	OF- 3	29.5	8.02	19	0.024	0.012	9.05	94	0.80	0.37	100m3/hr

SEP'2015

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	
15.09.15	OF- 1	26.9	7.46	32	0.177	0.021	11.26	76	1.58	1.34	450m3/hr
	OF- 2	27.1	7.76	28	0.028	0.017	8.35	52	1.32	0.46	200m3/hr
	OF- 3	29.2	8.00	29	0.018	0.012	7.50	42	1.16	0.40	100m3/hr

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'2015

Date	Time of Monitoring	Name of the STP	Quantity of the Effluent	Temp. ^{0}C	pH	TSS	BOD	COD	Remarks
14.04.05	12.20 pm	BGH	-	27.8	7.21	12	9.52	39	
	11.30 am	Dhandabra	-	28.2	7.06	14	12.64	56	
	11.00 am	Sector -6	-	27.5	7.25	16	11.26	53	
	10.35 am	Camp-2	-	29.4	7.52	17	14.34	75	
	10.15 am	Sector-12	-	28.3	7.14	14	12.38	62	

MAY'2015

Date	Time of Monitoring	Name of the STP	Quantity of the Effluent	Temp. ^{0}C	pH	TSS	BOD	COD	Remarks
26.05.15	12.20 pm	BGH	-	30.4	6.49	14	12.2	53	
	11.30 am	Dhandabra	-	30.7	7.01	16	13.5	73	
	11.00 am	Sector -6	-	29.9	7.03	19	11.5	42	
	10.35 am	Camp-2	-	30.7	6.04	15	14.5	86	
	10.15 am	Sector-12	-	30.8	7.05	14	12.4	72	

JUNE'2015

Date	Time of Monitoring	Name of the STP	Quantity of the Effluent	Temp. ^{0}C	pH	TSS	BOD	COD	Remarks
23.06.15	12.20 pm	BGH	-	28.1	7.25	13	11.50	69	
	11.30 am	Dhandabra	-	29.2	8.18	15	12.65	49	
	11.00 am	Sector -6	-	28.7	7.62	18	11.25	52	
	10.35 am	Camp-2	-	27.8	7.70	14	14.52	81	
	10.15 am	Sector-12	-	28.6	7.69	15	13.25	74	

JULY'2015

Date	Time of Monitoring	Name of the STP	Quantity of the Effluent	Temp. ^{0}C	pH	TSS	BOD	COD	Remarks
14.07.15	12.20 pm	BGH	-	28.1	7.55	15	10.56	64	
	11.30 am	Dhandabra	-	27.7	7.11	18	12.81	45	
	11.00 am	Sector -6	-	27.8	8.14	15	11.87	48	
	10.35 am	Camp-2	-	27.5	6.61	19	14.52	82	
	10.15 am	Sector-12	-	27.6	6.67	14	11.07	75	

AUG'2015

Date	Time of Monitoring	Name of the STP	Quantity of the Effluent	Temp. ^{0}C	pH	TSS	BOD	COD	Remarks
14.08.15	12.20 pm	BGH	-	29.4	7.95	18	10.95	81	
	11.30 am	Dhandabra	-	29.5	7.10	19	10.15	82	
	11.00 am	Sector -6	-	29.2	7.34	16	12.35	94	
	10.35 am	Camp-2	-	29.3	7.15	22	15.25	107	
	10.15 am	Sector-12	-	28.7	7.52	17	12.36	88	

SEP'2015

Date	Time of Monitoring	Name of the STP	Quantity of the Effluent	Temp. ^{0}C	pH	TSS	BOD	COD	Remarks
11.09.15	12.20 pm	BGH	-	28.2	7.11	12	10.20	39	
	11.30 am	Dhandabra	-	28.0	7.25	14	12.50	56	
	11.00 am	Sector -6	-	29.7	7.14	16	11.50	45	
	10.35 am	Camp-2	-	27.5	7.55	19	14.25	68	
	10.15 am	Sector-12	-	27.6	6.39	12	10.62	54	